JVC

VICTOR COMPANY OF JAPAN, LIMITED

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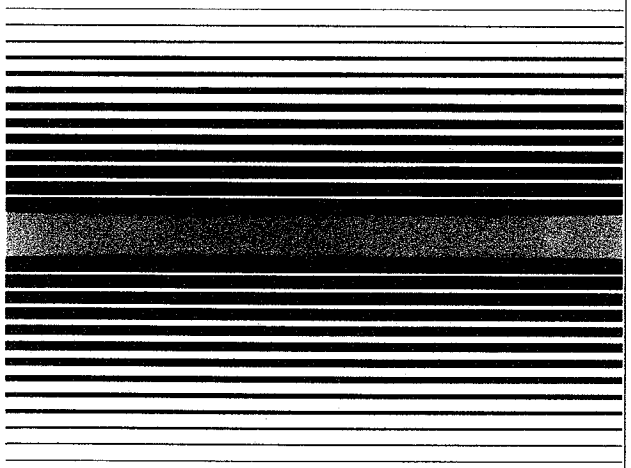
JVC Instructions

THREE CCD COLOR VIDEO CAMERA

KY-19/KY-27C



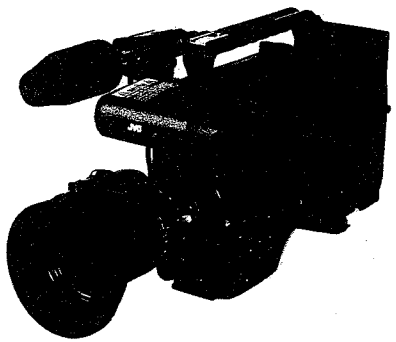


Photo shows the KY-27CH video camera with an optional camera adapter (KA-27), viewfinder (VF-P115), and lens (A14x10 BRM12)

1.1 QUICK USE GUIDE

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For Customer Use:

Enter below the Serial No. which is located on the top frame. Retain this information for future reference.

Model No. KY-19/KY-27C

Serial No. _____

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

POWER SYSTEM
This color video camera should be used with 12 V DC only.

CAUTION:
To prevent electric shocks and fire hazards, do NOT use other than specified power source.

Système d'alimentation
Cette caméra vidéo couleur ne doit être utilisée que sur tension continue de 12 V.

Attention:
Pour éviter tout risque d'incendie ou d'électrocution, n'utilisez aucune autre source d'alimentation.

Information for USA
This device complies with Part 15 of the FCC Rules. Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

INFORMATION (FOR CANADA)
RENSEIGNEMENT (POUR CANADA)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digitial apparatus as set out in the interference causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur; "Appareils Numériques", NMB-003 édictée par le ministre des Communications.

Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

GUIDES 1

There are three guides to help you find important information as quickly as possible.

Section 1.1 is the **Quick Use Guide** for the cover for the most important information in an emergency. The feature number in the camera diagrams and the topic page are listed.

Section 1.2 is a detailed **Table of Contents.**

Section 1.3 is an **Alphabetical Index** to speed the search of detailed topics.

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®: Betacam is a trade mark of SONY Corp.

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2 GENERAL FEATURES AND FUNCTIONS

2.1 INTRODUCTION

Thank you for purchasing the JVC KY-19/KY-27. You can look forward to long and reliable service from your camera and JVC.

If you have any questions feel free to contact your dealer. If you need to contact JVC directly for service or advice, your dealer will be happy to provide you with the necessary contacts.

This camera is a unique and rugged product that fits well with JVC or any other Manufacturers Broadcast and Professional Systems.

It is designed to be simple, flexible and straight forward to use based on considerable feedback from end users with demanding and exacting applications.

- Please note the layout of this manual to help you with your information needs.

1 **The Guide Sections** at the beginning will help you locate information quickly and with great detail.

2 **The General Features Section** will give an overview of the KY-19/KY-27's unique functions that you will want to look into further.

The **Precautions** subsection will help you take care of your camera, and understand some of the limitations as well.

The **Camera Diagram** section is a comprehensive map to each and every control, connector, indicator and function.

3 **The Basic Operation Section** assumes that you or your Technician has Assembled the camera according to section 6 on Installation and Preparation.

This section will allow you to quickly learn to get a decent image successfully to tape, and takes you step by step through a normal "every-day" set up.

4 **Advanced Operations** takes you right inside the features of your camera. You will understand exactly what each feature is intended to accomplish, and perhaps think of some new possibilities yourself.

5 **Operation With Other Equipment** is a step by step approach to use of the camera with Docked VTRs, External VTRs, and RGB devices. Genlock operation and Studio operation with JVC Camera Control Units is covered as well.

6 **Installation and Preparation** shows the great versatility of this camera, From stand alone configuration to dockability with virtually every Broadcast and Professional dockable VTR.

Get the most out of your system by rigorously adhering to the correct procedures.

7 **Additional Information** contains pertinent Specifications, Dimensions, and Accessories.

PRECAUTIONS 2.2

2.2.1 SAFETY

Please read the safety section on the inside front cover of this manual.

If there is any danger of being struck by lightning during outdoor shooting, evacuate to a safe place immediately.

Do not modify the unit or operate it without cover panels to prevent danger.

Do not damage or fray the power cord; otherwise this will cause leakage or electrical shock.

2.2.2 INSTALLATION

Before Turning on the power supply, please double check that you have followed installation procedures precisely.

Take Steps to avoid assembly in dusty, humid or corrosive environments.

When there is any abnormality (i.e. noise, smell, smoke or malfunction), immediately turn the power off and contact your nearest JVC Authorized service agent.

Do Not attempt to repair or open the unit or significant damage can occur immediately.

Severe hot and cold temperatures can damage your camera, especially the CCDs, even if only exposed during storage.

2.2.3 HANDLING PRECAUTIONS

Supply Voltage

Make sure that the power is between 10.5 V and 15 V DC. If the power voltage is too low, abnormal color and increased noise may occur.

Do not exceed 18V DC in any case, or the unit could be damaged.

It is advised to use the optional NB-G1 Battery (With the provided battery holder) or the optional AA-P250 or AA-G10 power adapters.

Protect the Lens and Camera Gate/Optical Block

The camera lens should be protected externally with a Clear or UV filter against accidental scratching, touching or dirt. The external lens cap should be used whenever possible.

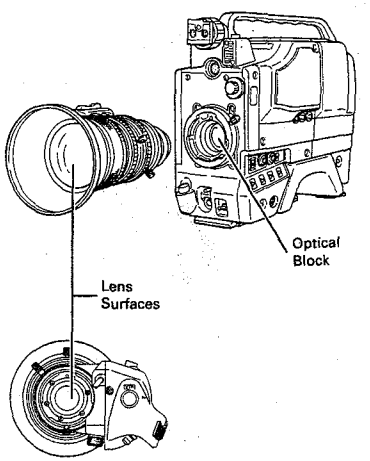
When the lens is changed take special care to avoid contaminating the inner lens surface and camera gate/optical block area with moisture or dust.

If the lens is to be left off at all, use the camera gate dust cap and the internal lens cap.

Temperature range

Do not operate this camera outside a −10 to 45 degrees Centigrade (14 to 113 degrees Fahrenheit) range.

Do not create Overheating from lack of ventilation.



The Sun

Prevent sunlight from directly entering the Lens and Viewfinder to avoid damage.

Shock

Although rugged, this camera should not be dropped and should be protected from shock; Especially the lens.

Do not hold by viewfinder.

This part is not intended to bear weight.

Shipping precautions; Transit versus Shipping.

During normal use the camera should be stored inside the JVC transit case.

However, these cases are NOT intended for shipping by air or post, but for protection while traveling.

If you wish to send the camera by air or post please place it inside the original carton, or pack the transit case securely.

Shipping positions

The Lens should be stored with both internal and external caps if removed from the camera, and the camera gate/optical block protected by the dust cover.

The View finder should be retracted into the shipping position and locked.

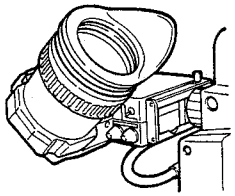
Cleaning

When the camera is dusty; clean with a dry, soft cloth. If extremely dirty use a neutral detergent and finish by wiping with a damp cloth.

If soiled with water, oil, solvent, etc. wipe the material off first with a soft cloth, and then clean with gauze soaked in denatured alcohol.

Do not damage the body of the camera by using volatile liquids such as benzine or thinner.

When the Lens is dusty, gently wipe it with a soft brush, or gently wipe it with a soft cloth slightly dampened by lens cleaner. Be careful not to scratch the lens.



2.2.4 PROTECTION AND PERFORMANCE OF THE CCDs.

Damage to CCD

Shooting direct sunlight or other strong light sources for a long time can damage the CCDs, even though they are less susceptible to burn than tubes.

Make it a rule to close the lens iris and protect the lens with a lens cap after use, as the internal filter does not completely block out light.

If the camera is not going to be used for an extended period of time, be sure to cover the lens with a lens cap.

High temperatures

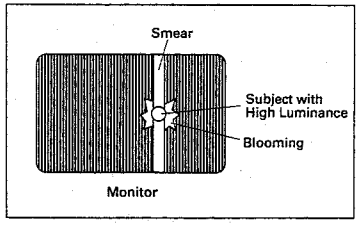
High temperatures can cause CCD sensor pixels to malfunction with the effect of White dots in the image. This condition could damage the CCD, and certainly raises the "fixed pattern" noise level that all CCDs have thus giving a noisy picture.

CCD Smear and Blooming

Due to the physical structure of the CCDs in this camera it is possible to induce vertical streaking or smear when shooting an extremely bright light source.

Another effect is the expansion of light around a bright light or object called Blooming.

Just as you protect your image against lens flare (internal lens reflections); please be careful when shooting a bright light source.



Gain, Noise and White Balance

Higher levels of output gain result in a decrease in the signal to noise ratio, possibly resulting in a noisy picture.

White balance can also be distorted when gain is increased or decreased without performing it again. Use this function in the mode that you expect to shoot.

Moire or Aliasing

Shooting stripes or fine patterns may cause a jagged effect or a banding in fine mesh patterns.

Try repositioning the lens zoom to change the frequency of the detail information and eliminate the distortions.

2.2.5 ELECTROMAGNETIC ENVIRONMENT

Powerful Magnets or Strong Electromagnetic fields can effect or damage the camera.

These are present in large machinery or near a radio or TV transmitter. The picture can become noisy and colors may be distorted.

The camera also produces Electromagnetic fields, and this can affect a wireless microphone or wireless microphone tuner. Try a different frequency to eliminate this.

2.2.6 CAMCORDER USE

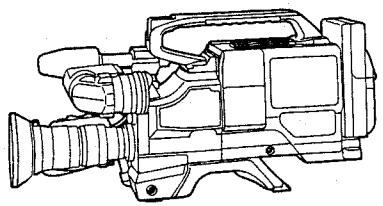
When using this camera docked to a VTR, please refer to that devices manual for precautions.

Typically it is important to protect the docked VTR from humidity and sudden humid environments, from rapid changes in warm to cold and cold to warm temperatures, and from shock or vibration.

Do not try to eject tapes from the Camera/VTR Off/Save or On/Save operating modes.

Do not leave the Camcorder in the Record/Pause mode to avoid using up the battery and damaging the tape.

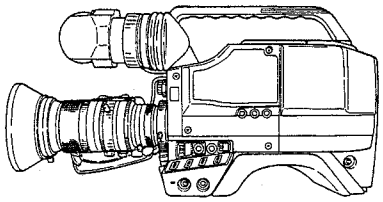
Remove cassettes when not shooting as a camcorder.



2.3 KY-19/KY-27 FEATURES

The KY-19/KY-27 three CCD camera is designed to give you the maximum field and studio utility for Broadcast or Professional applications.

The features are designed with the everyday challenges of shooting in mind.



2.3.1 HIGH PERFORMANCE FEATURES

Advanced Broadcast Specifications, Simple and Rugged Design

JVC is the first to utilize newly developed CCDs with High 800 Line Resolution, High Sensitivity of F9 (KY-27C), F8 (KY-19) at 2000 Lux 750 Line, F8 (KY-19) and a Superb Signal to Noise ratio of 62 dB (NTSC), 60 dB (PAL) at 0 dB Gain.

These pioneering CCDs use extremely low smear "Lens on Chip" Interline Transfer chip technology and take advantage of lens optical characteristics, backed by broad bandwidth camera electronics.

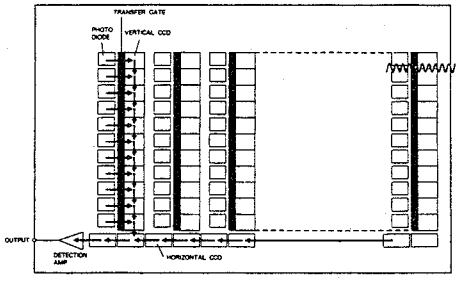
Simple Operation is based on intuitive "HANDS ON" controls and good ergometrics.

Control over Iris, Shutter speed and Gain can be Fully Automatic, or Variable by Priority in the Photographic tradition of Aperture Priority, Shutter Priority and Film Speed(sensitivity).

Rugged Design from stems from JVC experience in the field in the tradition of the KY series.

Internal boards are completely adjustable without the use of extenders through side mounted potentiometers. Internal dip switch settings are minimized.

Operating Temperature ranges from – 10 to 45 degrees C, 14 to 113 degrees F due to broadcast quality circuit components.



Universal Dockability

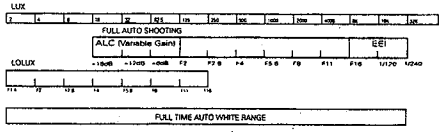
The KY-19/KY-27 is universally dockable to JVC and other Professional S-VHS and MII decks as well as Betacam® Professional, Hi8, and Broadcast Betacam® SP decks.

LOLUX Gain

LOLUX captures scenes never before possible because of low lighting conditions.

In this mode the CCD chip is maximized for low light sensitivity comparable to a Gain Up position of +33 dB (KY-27), +30 dB (KY-19). This Super Sensitivity is ideal for special shooting conditions with almost no lighting.

Good color balance is maintained even down to 2 lux illumination.



FULL AUTO SHOOTING AND LOLUX RANGE (KY-19)

Full Auto Shooting

JVC programming expertise is the first to create this new mode of operation. The Camera person can count on new confidence in capturing the image quickly in any situation, taking advantage of the cameras broad image analysis powers.

This Full Automatic "Program" Shooting mode means that the camera person can count on an excellent picture just by zooming, focusing and pushing the trigger.

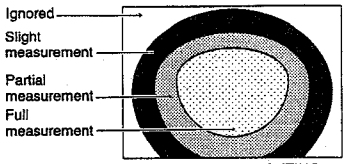
Most conditions likely to be encountered are recognized by the camera and adjusted for by these KY-19/KY-27 image analysis functions.

Through MULTIZONE WEIGHTING of the image area the priority of the sector of the image is applied to the camera's response to light values.

The AUTOMATIC IRIS then works in concert with Enhanced AUTOMATIC LEVEL CONTROL (ALC). Enhanced ALC uses Variable Gain and Variable Shutter Speed (EEI: Extended Electronic Iris) to extend the exposure operating range.

The type of Subject Lighting is compensated for using the AUTOMATIC AVERAGE/PEAK BALANCE function.

Finally the FULL TIME AUTO WHITE function analyses orange/yellow and blue colors in the video image and adjusts for the proper center white balance, with correction to ensure proper skin tones.



MULTIZONE WEIGHTING

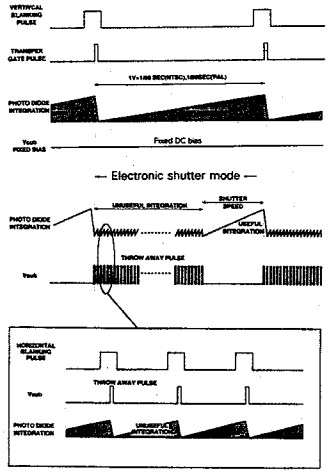
2.3.2 ADVANCED APPLICATIONS FEATURES

Beyond this high level of performance the camera person can manually determine how to shoot the subject matter taking into consideration the needs of advanced applications, and taking advantage of the KY-19/KY-27's image analysis features.

Variable Scan

Flicker Bars in the display image of Computer Monitors are caused by the differing scan rates of the Computer Monitors.

The Variable Scan function can minimize this effect by tuning the camera shutter speed to the precise scan rate of the Display screen.



VARIABLE SCAN

Aperture Priority

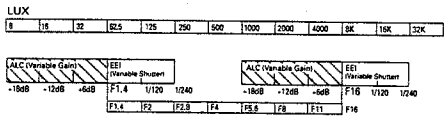
The new Enhanced ALC (Automatic Level Control) mode allows the Video Signal levels to be governed by either the Automatic or Manual Aperture Setting.

The camera then uses both Gain up to +18dB and Shutter Speeds up to 1/250th of a second to adjust for the needed exposure.

The camera operator can set a fixed depth of field under a variety of shooting conditions by setting the Iris manually. The changes are smooth and continuously variable, starting from wherever the Iris is set.

In Manual Iris, 0 dB Gain the cameras range is extended at F1.4 from 62.5 lux down to 8 lux in low light and at F16 from 8000 lux up to 32000 lux in bright light. (KY-19)

This exposure range is the equivalent of 3 F-stops below and 2 F-stops above the actual lens F-stop.



FIXED F STOP RANGES (KY-19)

Camera Setup

CONTOUR (Detail enhancement) and MASTER BLACK (Pedestal) are easily adjustable through the Camera Set-Up Menu. Even in extreme shooting conditions the camera person does not need to open up the camera to adjust these fundamental features.

Iris Over/Under

The reference level for the exposure programming can be adjusted for over and under exposing by approximately a half F-stop.

The Iris Over/Under control is in easy reach on the outside of the camera.

Iris Detection mode

The type of subject lighting can be compensated for.

Subjects with brightly lit highlights that should not be over exposed are shot with PEAK mode.

Subjects close to the background lighting with bright highlights that should not be preserved are shot with AVERAGE mode.

The AUTOMATIC AVERAGE/PEAK BALANCE function (APB) allows the KY-19/KY-27 to analyze if the scene is a Peak or Average situation and continuously vary its response according to changing conditions.

Computer and Remote CCU Control

Studio and other advanced applications can choose from Standalone, Inexpensive or Long range High Precision Camera Control units.

Computer Camera Control is available for basic functions with the optional cable for IBM computers. A optional Cable and Software is available for Macintosh computers.

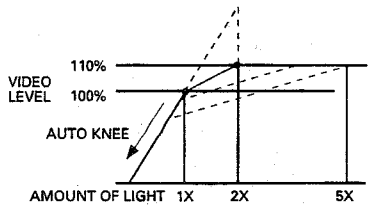
2.3.3 STANDARD FEATURES

Auto Knee

All cameras limit the highest bright signals to keep them with in signal specifications. As the signal approaches this point the constant ratio of brightness to signal is changed.

As the dynamic range of scene brightness increases the KY-19/KY-27 compensates by lowering the point that the ratio change begins to so that brighter values are reproduced within the acceptable range of the video signal.

The Auto Knee circuity extends a scenes light to dark dynamic range reproduction up to five times with out over exposure.



Comprehensive Viewfinder Status Overlay.

The Comprehensive Viewfinder Status system allows the cameraperson to keep track of Audio levels, Accumulated or Remaining Recording Time, and VTR operation and Battery Voltage and Camera Set-Up.

The video signal and framing are indicated by Zebra video level indication and Safety Zones with center marker.

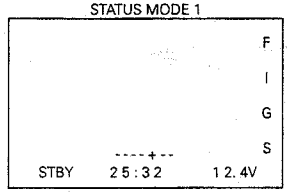
The Set-Up of the camera can be verified completely through the Viewfinder while shooting.

The large 1.5" viewfinder itself has very sharp 600 lines resolution.

2.3.4 ADDITIONALLY

- 800 lines (KY-27C), 750 lines (KY-19) horizontal resolution.
- High F9 (KY-27C), F8 (KY-19) at 2000 lux sensitivity at 0 gain.
- High Signal to Noise ratio of 62 dB (NTSC), 60 dB (PAL) at 0 gain.
- Vibration and impact resistant.
- Compact and light weight.
- No lag, burn resistant, no deflection distortion
- No missregistration from terrestrial magnetism.
- Component, Composite, Y/C and RGB outputs
- Shutter Speeds: 1/60 - 1/2000
- 2H contour (detail) correction
- 4 settings for white balance: Auto 1 and 2, 3200K preset, Full Time Auto White
- New color matrix circuit.

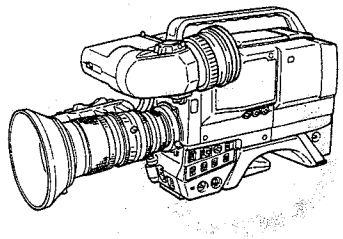
STATUS MODE 1



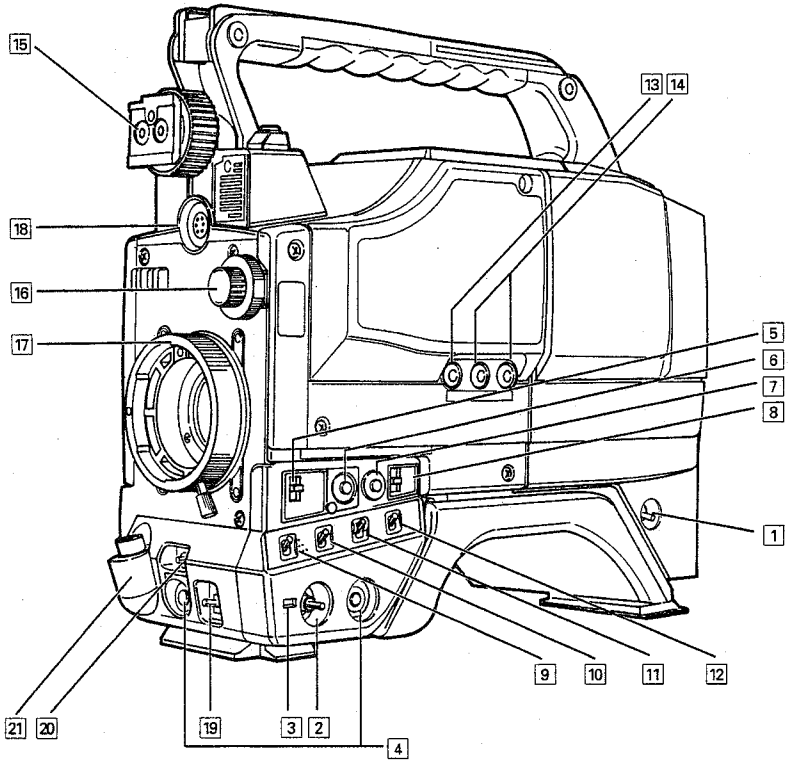
VTR STATUS REC TIMER BATT VOLTAGE

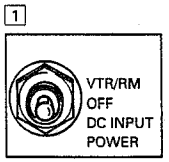
STATUS MODE 2

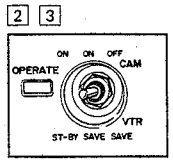
WHITE BAL	AUTO 1
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
FULL AUTO	OFF
TAPE	< 10

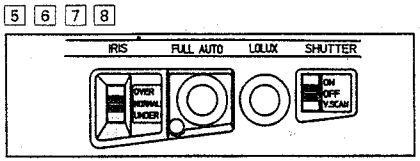


2.4 CAMERA DIAGRAMS: CONTROLS, CONNECTORS, INDICATORS









2.4.1 SWITCHES FOR CAMERA CONTROL AND SETUP

1 [POWER] POWER MASTER SWITCH (OPTIONAL KA-27)

This switch chooses the type of power source and turns on the camera.

If a VTR is docked there will be a similar Master Power Switch.

VTR/RM : Power is supplied through the Multipin Connector from an external VTR or Remote Control Unit.

OFF : Master Power Off for Camera/KA-27.

DC : Power is supplied from the onboard Battery pack or the 4 pin DC input. The 4 pin input has priority over the on-board battery.

WARNING : Do NOT unplug or plug the power while shooting, even if a battery is installed.

2 [OPERATE] CAMERA/VTR OPERATE SWITCH

ON/ST-BY : (On/Standby) For instant recording. VTR head is spinning in Record/Pause Mode.

ON/SAVE : To conserve power use by VTR. VTR head is stationary. In JVC SVHS decks circuit power is also off. (Hi8 decks have no save function)

OFF/SAVE : To conserve power use by CAMERA and VTR. Viewfinder is off and Camera is off.

3 CAMERA/VTR OPERATE LIGHT

Bright : In ON/ST-BY and ON/SAVE position
Dim : In OFF/SAVE position
Off : KA-27 Power Master switch is Off or Power to unit is exhausted or not connected.

4 [VTR] VTR TRIGGERS (Recording Start/Stop)

These momentary buttons initiate or end recording if the VTR is in the Record/pause mode and the Camera/VTR Operate Switch is in the ON/ST-BY position.

There is a similar switch on the lens Servo, the optional RM-LP80 control unit and the Lens Studio Control Kit.

5 [IRIS] IRIS OVER/NORMAL/UNDER

Switch 5 can be used to adjust the exposure system to over or under expose by about a half F stop.

Push up for continued over exposure.
Push down for continued under exposure.
Middle for normal exposure

Many conditions can cause the detection mode to expose high or low, such as back lit or spot lit situations.

6 [FULL AUTO] FULL AUTO SHOOTING AND INDICATOR LIGHT

This momentary switch turns this function on and off, with a Orange indicator light.

Full Auto Shooting combines the Auto Iris, Variable Gain setting and Variable Shutter Speed to control the exposure automatically.

The Iris is placed in Automatic even if the Auto Iris switch on the lens is in Manual.

The Gain will vary continuously to the maximum of +18 dB when the Iris reaches F2.0.

The Shutter speed will vary continuously to the minimum of 1/250th of a second when the Iris reaches F16. (EEI mode).

In addition the FULL TIME AUTO WHITE function samples colors in the image and determines the appropriate white balance, with proper skin colors as a control.

7 [LOLUX] LOLUX GAIN

LOLUX gain gives extremely low light level sensitivity for special applications.

LOLUX operation takes priority over normal gain operation.

Operation of LOLUX overrides the Variable Gain and Variable Shutter functions in Full Auto Shooting. Gain and Shutter are defaulted to previous switch settings including Variable Scan.

8 [SHUTTER] SHUTTER ON OFF/VARIABLE SCAN

SHUTTER ON :

This mode allows setting of different Shutter speeds.

To change shutter speed push the UP or DOWN SET Buttons 14 after placing this switch in the up and ON position.

The range of shutter speeds cycles between:

→ 1/100, 1/250, 1/500, 1/1000, 1/2000 ⟶

OFF :

This mode corresponds to the standard 1/60 NTSC.

VARIABLE-SCAN :

This mode helps adjust the shutter speed to match the scan rate of a display or computer monitor.

Place the switch down in the V.SCAN position and then use the UP or DOWN SET Buttons to adjust the speed.

The result will be to eliminate the darkor light horizontal flicker bar. When the bar is the thinnest is the best setting.

If the bar is light the shutter speed is too low.

If the bar is dark the shutter speed is too high.

TO CHANGE THE SHUTTER SPEED OR VARIABLE SCAN AGAIN:

Press the UP or DOWN buttons again to activate the display, and a second time to change the speed.

9 [GAIN] GAIN SELECT SWITCH

The gain function boosts the signal from the CCD sensors.

The pyramid of dots stands for the different sensitivity levels. Two dots and Three dots can be changed in the Camera Set-Up menu.

One dot : Always equals the OdB gain up position.

Two dots : When Set Up for either enhanced ALC or +9dB.

Three dots : Is Set Up for +18dB.

Two dots : When Set Up for +6dB

Three dots : Can be Set Up for either Enhanced ALC, +9dB, and +12dB.

(ALC mode is the Enhanced AUTOMATIC LEVEL CONTROL mode in which Variable Gain and EEI (Variable Shutter speed) are used to achieve good video levels based on the Automatic or Manual Iris setting.)

10 DISPLAY SELECT /OFF/ SAFETY ZONE

● STATUS DISPLAY SELECT

Three information display modes are cycled between by pushing this switch repeatedly in the up DISP.SELECT position.

See section 2.4.5.2 for more details.

Mode 0 : Engaged Special Functions and video only are displayed on the right side of the screen.

F =Full Time Auto White

I =Iris level; Over or Under

G =Gain Up; 6dB, 9dB, 12dB, 18dB, **or**

L =LOLUX

S =High Speed Shutter or Variable Scan **or**

FAS =Full Auto Shooting **or**

ALC =Automatic Gain / Variable Shutter mode

Mode 1 : In addition, pressing the DISP. SELECT button up once also shows:

VTR status, Accumulated or Remaining Record Time, Battery and Input DC voltage, and Audio Levels.

Mode 2 : White balance mode
Filter Position
Shutter speed
Gain
Iris level
Iris Detect Mode
Auto shoot on/off
Accum. or Remain Rec time

● SAFETY ZONE SELECT

Three Overscan Safety Zone modes are cycled between by pushing this switch repeatedly down in the ZONE position.

Mode 0 : Video Only
Mode 1 : Safety Outline
Mode 2 : Center Markings and Safety Outline

The Ratio of the safety outline is changeable in Camera Set Up between 4:3 Standard and 16:9 Cinema ratios.

11 [MODE] CAMERA/COLOR BARS MODE

This switches between Camera and Color Bars video output.

12 [W. BAL] WHITE BALANCE AUTO 1/(AUTO2-FAW)/ PRESET

There are four white balance modes possible with this switch.

Auto 1 :White Balance Memory 1 is fixed in this position. If white balance is performed with the switch in this position it will be memorized.

Auto 2 : Can be selected in Camera Set Up as either White Balance Memory 2, or FULL TIME AUTO WHITE.

FULL TIME AUTO WHITE samples the color temperatures of the video image and adjusts for the correct middle white balance, with control for proper skin tones.

Preset : A non-erasable White Balance setting to 3200 degrees Kelvin. This corresponds to normal indoor tungsten incandescent lighting.

An Emergency setting for Indoors with a 3200 K setting or Outdoors in with a 5600 K filter turret setting.

13 [SET] ACCUMULATED RECORD TIME RESET/ CAMERA SET-UP

A. ACCUMULATED RECORD TIME RESET TO ZERO.

Accumulated Record Time is the approximate total VTR Record Time in minutes and seconds, based on the duration between pushing the VTR trigger.

If this is selected in Camera Setup for the Status Display 1 mode the Status display 2 mode will show Remaining Record Time.

TO CLEAR

● First Push the SET button once.
● Then Push the DOWN button once to set the current Accumulated Record time to zero.

This overlay mode is automatically cleared after 5 seconds.

B. CAMERA SET-UP:

● Select by pushing this button twice.

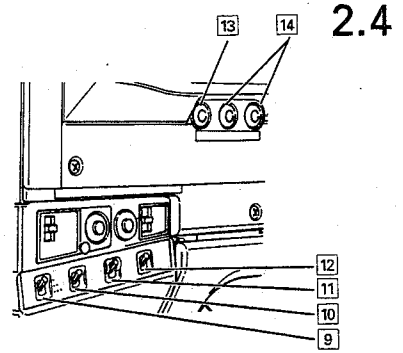
Continued pushing of this button will cycle through the Camera Set-Up Menu.

Pushing the adjacent UP or DOWN button will select a new function condition.

This overlay mode is automatically cleared after 5 sec.

Fundamental Camera operating and Set-up configuration includes:

● Contour (Detail) level,
● Master Black level,
● Iris/Exposure detection mode,
● Gain button assignment,
● Full Time Auto White/Auto White Memory 2,
● Cinema or Standard Safety Zone,
● Accumulated or Remain Record Time assignment,
● Lens Trigger type.



9 GAIN

•	0dB*				
••	ALC (0 - 18 dB)	9dB*	6dB		
•••	18dB*		ALC (0-18dB)	9dB	12dB

* Factory Setting

10 STATUS DISPLAY

STATUS MODE 0 (No display)

F
I
G
S

STATUS MODE 1

F
I
(Audio Indicator)
L
ALC

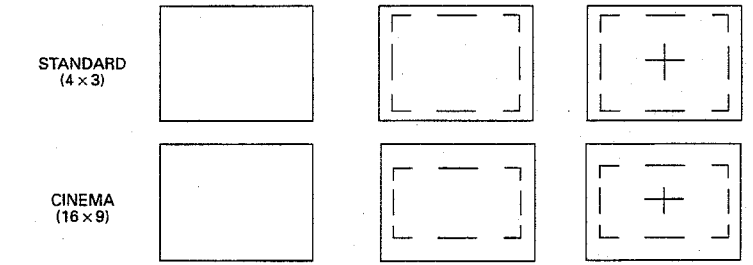
STBY 25:32 12.4V

VTR STATUS REC TIMER BATT VOLTAGE

STATUS MODE 2

WHITE BAL	MANUAL
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
AUTO SHOOT	ON
TAPE	< 10

SAFETY ZONE



13 SET

ACCUMULATED RECORD TIME RESET

ACC REC TIME RESET
12:00
PUSH "DOWN" BUTTON

CAMERA SET UP

CONTOUR	NORMAL
M BLACK	NORMAL
IRIS DET	NORMAL
GAIN	0 : 6 : 9
AW2	AUTO
ZONE MODE	STD
REC TIME	REMAIN
LENS TRIG	NON LOCK

14 [UP, DOWN] UP, DOWN BUTTONS

These buttons are used in selecting values for SHUTTER SPEED, VARIABLE SCAN, ACCUMULATED RECORD TIME RESET, and CAMERA SET UP.

When the new value is visible in the viewfinder status display the condition is activated; no further buttons need be pressed.

15 VIEWFINDER POST

This post is the viewfinder mount and also a handle mount. The VIEWFINDER SLIDE LOCKING RING is located here.

16 FILTER TURRET

This Turret changes the internal Filter.

The white number is the current Filter number corresponding to a color temperature listed in the table next to the Turret.

The Filter type is also shown in the Status Display 2 mode.

The orange numbers indicate the Filter to be selected by twisting the Turret in that direction. (KY-27 only)

Position 1 : Clear Filter, for use with color temperatures of 3200 Kelvin.
Use indoors or outside at night.

Position 2 : "Outdoor" Filter, for use with color temperatures of 5600 K.
Use outdoors or with HMI lighting.

Position 3 : "Outdoor" Filter + 1/16ND, for use with very bright conditions and color temperatures of 5600 K.
6.3% of the light is passed on to the CCDs.

Position 4 (KY-27 only) : Cross Effect Filter. Gives highlights a Cross Star effect.
For use with color temperatures of 3200 K.

17 LENS RETAINING RING

Hold the lens and use the knob to twist the ring counter-clockwise to release lens.

To mount lens make sure the lens guide pin fits well, and then twist the ring clockwise until firm.

18 VIEWFINDER CONNECTOR

Connect VF-P115 or VF-P400 here.

19 [AUTO] WHITE BALANCE/AUTO SETUP/BLACK BALANCE

- First position a white object to occupy 80% of the center of the image.
- The Lens iris can be in Auto or Manual Mode.

White Balance:

Is performed by pushing this button upward once momentarily.

Is not activated in Preset, Full Auto Shooting and Full Time Auto White mode.

Auto Set Up/Black Balance:

Automatic Black Balance, then White Balance then Black Balance again are performed by pushing this switch down once momentarily.

Black balance only is performed in Preset, Full Auto Shooting and Full Auto White Mode.

The Iris will be held shut by the Auto Iris during Black Balance.

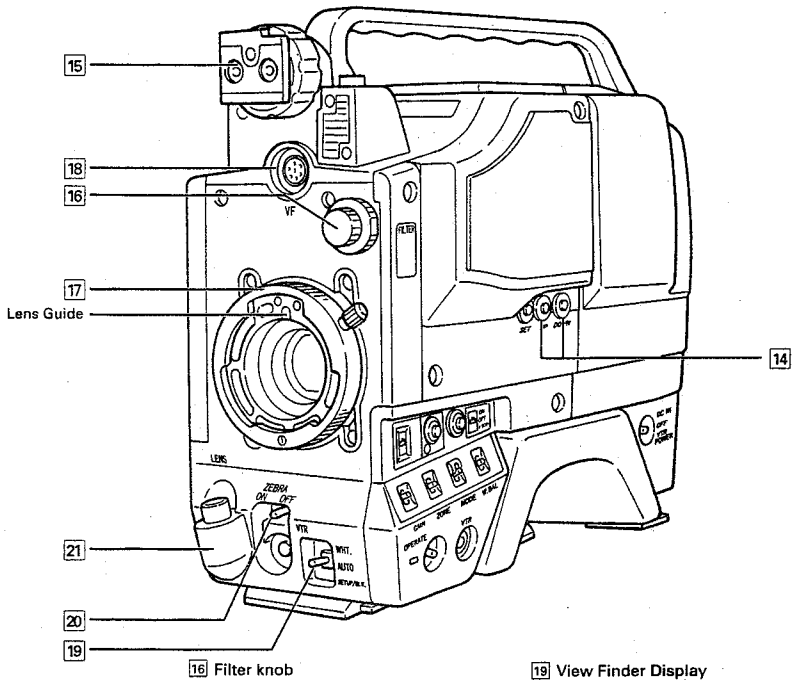
20 [ZEBRA] ZEBRA ON/OFF SWITCH (VIDEO LEVEL INDICATION)

This switch turns on and off the Zebra stripe pattern in areas of highlights between 80 to 90 percent brightness on viewfinder.

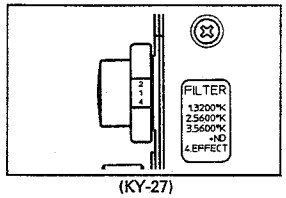
21 LENS CONTROL CONNECTION

Connect either 12pin lens control cable here.

Verify that the lens in use has a locked or unlocked (momentary) VTR trigger, and adjust the Lens Trigger in Camera Set-up.

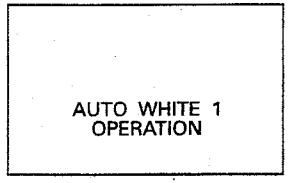


16 Filter knob



(KY-27)

19 View Finder Display



See Confirming messages page 29

21 12 Pin Chart

Pin No.	Function	Pin No.	Function
1	RET switch	7	IRIS position
2	VTR trigger	8	IRIS A/R
3	GND	9	–
4	IRIS enforce AUTO	10	–
5	IRIS control	11	–
6	12V DC	12	Y OUTPUT

2.4.2 SWITCHES AND CONTROL OF CAMERA INPUT AND OUTPUT, ACCESSORY MOUNTS

22 HANDLE WITH ACCESSORY SHOE AND STUDIO VIEWFINDER MOUNT

23 MICROPHONE INPUT (POWERED CAMERA MIC)

This unbalanced six pin connector is for the JVC powered Camera Microphones. 9V power is supplied from the camera.

Stereo: MV-P612, MV-P602 Mono: M-K50.

Select this connector with the CAM position of the Mic Select Switch (41) on the KA-27 or VTR.

For MV-P602 and M-K50, additional Cable (VC-P740) is required.

For other microphones see the KA-27 microphone input (38).

24 MICROPHONE HOLDER SCREWS

The KA-A27 included Microphone holder can be mounted here.

25 [RET] RETURN VIDEO SWITCH

Switched to On, RET selects the "RETURN" E to E signal from the VTR or RM-P300 Camera Control Unit to be shown in the viewfinder. There may be an identical switch on the lens servo.

WARNING! With this switch activated the E to E viewfinder video DOES NOT include Status or Set-Up information if the deck is in Record or Record Pause mode.

Selecting certain functions will automatically switch the viewfinder back to Camera Video during operation:
Auto White, Auto Set, Auto Black, Camera Set-Up, Shutter On, Variable Scan On.

26 [MIC] MIC STEREO/MONO

Selects the type of Audio Signal sent to the VTR from the Camera or Adapter microphone inputs.

STEREO : To Record independent signals on the Right and Left channels in the Docked configuration only.

WARNING! A portable VTR connected by a cable can only record the Left microphone channel.

WARNING! A Mono microphone will only record on the left channel of the docked VTR.

MONO : To record the same signal on both channels, Mono or Stereo microphone, Docked or Undocked.

27 GENLOCK PHASE SETTINGS

H : Adjusts the Horizontal Sync Phase of the camera video with respect to the Reference Sync signal sent to the Genlock Input.

SC : Adjusts the Color Subcarrier Phase 360 degrees with respect to the signal sent to the Genlock Input.

28 CHEST REST CONNECTION

Screw in the optional KA-111 chest rest here.

29 TRIPOD BASE RETAINING WEDGE

The KA-510 quick release Tripod Base must be used to put the camera on a tripod or camera stand. Make sure both ends of the camera head are firmly seated with both wedge 29 and clip 35.

Wedge 29 should only be locked into place if the rear clip 35 is engaged

The front clip will hold the camera safely, but without engaging the rear clip, the camera will tend to move slightly in the base.

30 REMOTE CONNECTOR (6 PIN)

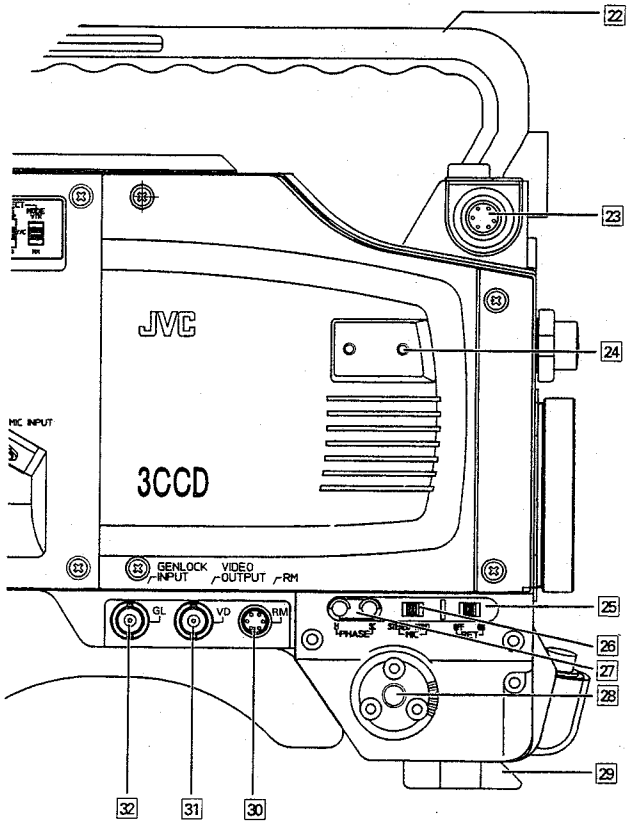
This remote connector allows the connection of the RM-LP80 stand alone remote control unit (optional) and the Computer Control Cables (optional).

31 VIDEO OUTPUT (COMPOSITE)

Video output is for Camera Video only. Return Video from the VTR, or Viewfinder status are not available.

32 GENLOCK INPUT

External Reference Composite video or black burst video input. (VTR video is not stable enough without a Time Base Corrector.)



23 CAMERA MIC PIN CONFIG.

Pin No.	Function
A	R (HOT)
B	+9 V DC
C	GND
D	L (HOT)
E	L (GND)
F	R (GND)

30 REMOTE PIN CONFIG.

Pin No.	Function
1	GND
2	RM/LRM
3	GND
4	SID 2 OUT
5	SID 1 IN
6	+9V OUT

2.4

2.4.3 OPTIONAL KA-27 CAMERA ADAPTER

33 VIDEO OUTPUT (Y/C 358 NTSC), (Y/C 443 PAL)

Video output is for Camera Video only, Return Video from the VTR, or Viewfinder status is not available. This output is always active.

34 DC INPUT

This connector is designed for 12 volts DC input.
JVC suggests the use of the AA-P250 in standalone and most docked situations.
The camera will work between 10.5V and 15V.

This connector is activated by the MAIN POWER SWITCH 1, and has priority over the Internal Battery Pack mounted on the back of the KA-27. Turn off the camera before connecting or disconnecting the DC power.

35 TRIPOD MOUNT RETAINING CLIP

Make sure KA-510 tripod base is firmly seated first with camera retaining clip 35 and then locked in place with front retaining wedge 29.

The front clip and wedge will hold the camera safely, but without engaging the rear clip,the camera will tend to move slightly in the base.

36 REMOTE CONTROL/VTR MULTIPIN CONNECTOR

Use to connect to a VTR or the RM-P200 and RM-P300 Camera Control Units. See VTR and Audio Output select switches 42 - 45 for proper signals.

37 INTERCOM CONNECTOR

This is for talk back intercom use with the Camera Control Unit. The Headset should be configured with a connector with the proper tip/ring/sleeve configuration and headset and microphone impedance. This changes with different applications of the remote control units RM-P200 or RM-P300.

38 MICROPHONE INPUT (BALANCED)

This is an input for mic level only; with an balanced XLR three pin connector. (See chart of pin configuration)

39 INTERCOM LEVEL CONTROL

Controls the volume of the intercom headset connected to the Intercom connector.

40 EARPHONE CONNECTION

This connector usually monitors the E to E signal returned from the VTR or program audio from the remote control unit only.
The VTR may need to be in record pause mode for the camera or adapter microphone inputs to be monitored.
Some VHS only VTRs do not send return Audio.

41 CAMERA / ADAPTER MIC SWITCH

This switch determines whether the Camera mic input or the Adapter mic input is active.

42 MIC AUDIO OUTPUT LEVEL SWITCH

Different VTRs or applications of Remote Control Units may require Line or Mic Audio Output levels.
The -20 dB setting activates the camera/adapter mic preamp to bring the output level up to -20dB through the 26 pin cable connection. See chart page 36.

43 COMPONENT VTR SELECT SWITCH MII/BETA

This controls the signal levels for the different Component standard outputs.

44 SIGNAL OUTPUT: COMPONENT/ Y/C /RGB

The signal sent through the 26 pin connector can be selected for one of these three signals in addition to composite video. See chart page 36.

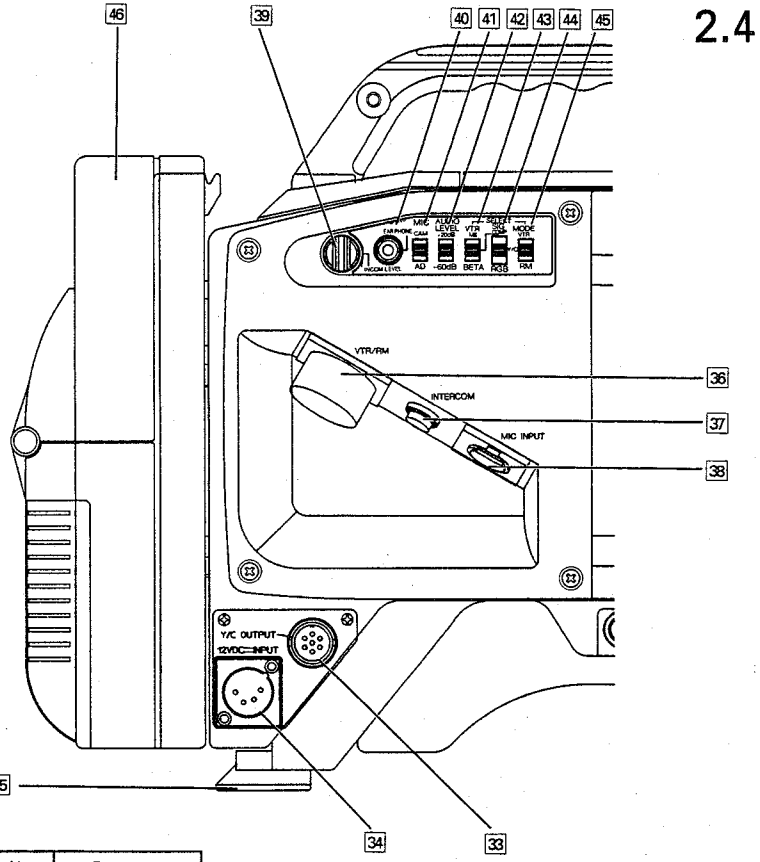
45 VTR/REMOTE CONTROL UNIT SWITCH

- Set to VTR for any kind of VTR connection.
- Set to Remote if RM-P300 or RM-P200 is connected.

Note: Certain 10 pin connector VHS VTRs with Ground Start trigger modes require an internal adjustment to the KA-27. Please consult your service representative. See chart page 36.
This unit is factory set for a +5V trigger.

46 BATTERY HOLDER

Shown here is the standard battery holder. This can be used for Flat shape type and JVC NB-G1 Batteries.
The 4pin 12V DC connector has priority over this battery holder.
Other manufactur's battery holders can be attached instead.



33

Pin No.	Function
1	Y OUT
2	GND
3	NC
4	NC
5	C OUT
6	GND
7	NC

34

Pin No.	Function
1	GND
2	NC
3	NC
4	+12V IN

37

Pin	Function
TIP	MIC
RING	EARPHONE
SLEEVE	GND

38

Pin No.	Function
1	GND
2	HOT
3	COLD

2.4.4 OPTIONAL VIEWFINDER VF-P115 (ENG)

1 SLIDE LOCK
This stopper screw prevents the viewfinder from coming off the camera.

2 VIEWFINDER SHOE
Attaches to the Viewfinder Post on camera.

3 VIEWFINDER CABLE
Connect to camera socket 18.

4 CONTRAST
Controls the level of Viewfinder contrast.

5 BRIGHT
Controls the level of Viewfinder brightness.

6 TALLY SWITCH
Set this switch to off if you do not want to inform the subjects by the Tally light that they are being recorded.

7 TALLY LIGHT
Lights when recording is in progress.

8 EYEPIECE
Blocks light from viewfinder screen and holds eye optics.
The Eyepiece can be opened to view the screen directly.
The Eyepiece can be rotated up and down for the best shooting position.

9 EYEPIECE FOCUSING RING
Loosen this ring and move the Eyepiece backward and forward to focus the viewfinder for the operators vision.

10 VIEWFINDER SLIDE LOCKING RING
This ring on the camera viewfinder post can be loosened to move the viewfinder to the left or right for the best operator comfort.

WARNING!: Avoid Over Heating if a light is mounted on the camera handle accessory shoe!

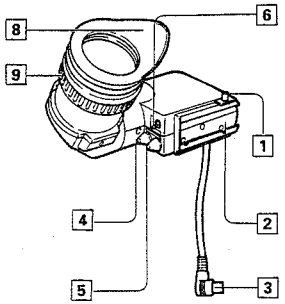
2.4.5 VIEWFINDER WARNING INDICATIONS

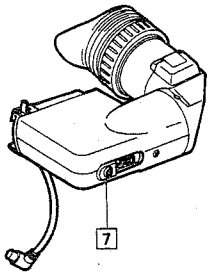
2.4.5.1 VIEWFINDER WARNING LIGHTS

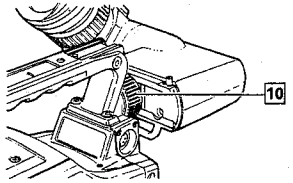
11 BATTERY LIGHT
This lights red when battery voltage becomes too low for the camera to operate.
Some VTRs signal low battery with the REC/ALARM light.

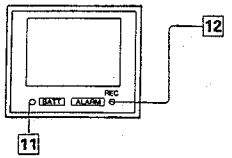
12 REC/ALARM LIGHT
This light shines for these conditions.

Solid Green : ● While recording.
Blinks Green : ● While the VTR prerolls before recording.
● If the Tape is finishing.
● If the VTR Malfunctions.
● For some VTRs this indicates Low Battery.









TO CLEAR THE "BATTERY ALARM LIGHT"

To clear the "BATTERY ALARM" warning light, the power must be turned OFF once on the camera.
If the VTR is powered separately, this means the camera must still be turned OFF once to clear the display

2.4.5.2 VIEWFINDER WARNING MESSAGES

Function Failures:

WHITE BALANCE/BLACK BALANCE function

AUTO WHITE 1, 2 OBJECT ERROR	Check whether the object being shot is white enough. Check for proper filter
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO WHITE 1, 2 OVERLIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected
ERROR	Circuit trouble exists. Check with JVC service center.

Automatic Warnings:

LOW BATTERY This blinks when the VTR or Camera battery level falls too low.

< 10
This indication blinks with docked professional SVHS VTRs and docked Betacam SP VTRs with the KA-B20/B27 adapter.
There are less than 10 minutes tape.

< 5
This indication blinks with docked MII VTRs with the KA-M20 adapter and docked Betacam SP VTRs with the KA-B20/B27 adapter.
There are less than 5 minutes tape.

TAPE NEAR END
This indication blinks with docked JVC professional SHS VTRs, docked MII VTRs with the KA-M20 adapter, docked Betacam SP VTRs with the KA-B20/B27 adapter.
There are less than 3 minutes of tape remaining

Messages displayed for JVC Docked Professional SVHS decks only:

TAPE END	The tape has run out.
VTR WARNING	The VTR is not operating due to Condensation on the video heads, Servo failure, or other malfunctions

VTR OP MISS? VTR OPERATION MISSED.

- The Docked JVC SVHS VTR may not have been placed in Record/Pause mode. Press the Record and Play buttons to activate Record/Pause.
- The OPERATE switch 2 may be in ON/SAVE. The Save function stops head rotation and turns off the power to the circuitry in JVC Professional SVHS decks.
- Check the Operate switch on SVHS Dockable VTRs. This activates the SAVE function.
- Check for missconnection.

WHITE BALANCE/BLACK BALANCE

AUTO WHITE 1
OBJECT ERROR

Automatic Warnings:

< 5

TAPE END

VTR TRIGGER

VTR OP MISS ?

2.4.6 STATUS INDICATIONS (ON SCREEN)

1 To manually check important Status Conditions, activate the overlay display by pushing the Display Select switch (Camera [10]) up momentarily. The display cycles between 3 modes.

Mode 0: Engaged Special Functions and video only are displayed on the right side of the screen.

F = Full Time Auto White
I = Iris level; Over or Under
G = Gain Up; 6dB, 9dB, 12dB, 18dB, **or**
L = LOLUX
S = High Speed Shutter or Variable Scan **or**
FAS = Full Auto Shooting **or**
ALC = Automatic Gain / Variable Shutter mode

Mode 1: In addition, pressing the DISP. SELECT switch up once also shows:

VTR Condition: SAVE, STBY, REC.
Recording Time: Accumulated or Remaining minutes and seconds.
Battery Voltage: Volts,Tenths of Volts
Audio Levels: VU readings (seven steps)

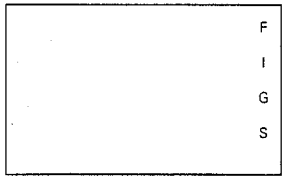
-18 -12 -6 -3 0 +3 +6

The Audio Level display is available only from some dockable VTRs.
VTRs without return audio or portable VTRs will not give an audio level display.
The viewfinder 0 dB level must be set to match the VTR meter 0 d B audio level.

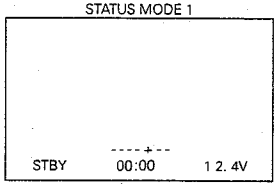
Mode 2: Press Display button Twice.
This safely shows most camera settings. Parameters can not be adjusted.

WHITE BAL	: PRESET, AUTO 1, AUTO 2, FAW, MANUAL
FILTER	: 3.2K, 5.6K, 5.6+ND, Effect (KY-27 only)
SHUTTER	: 1/100 to 1/2000, Variable Scan Value
GAIN	: OdB, 6dB, 9dB, 12dB, 18dB, LOLUX, ALC
IRIS LEVEL	: OVER, NORMAL, UNDER
IRIS DET	: NORMAL, AVG, PEAK, APB
FULL AUTO	: ON, OFF
TAPE	: (REMAIN) <10,<5, TAPE NEAR END, TAPE END (ACCUM) Minutes:Seconds

STATUS MODE 0



STATUS MODE 1



VTR STATUS REC TIMER BATT VOLTAGE

STATUS MODE 2

WHITE BAL	MANUAL
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
FULL AUTO	ON
TAPE	< 10

2 CAMARA SETUP

To check the CAMERA SET UP press the [13] SET button twice.

WARNING! This Mode can also change a setting if the UP or DOWN button is pressed.

CONTOUR	: -10 to -1, NORMAL, 1 to 10
M BLACK	: -10 to -1, NORMAL, 1 to 10
IRIS DET	: AVG, PEAK, APB, NORMAL
GAIN	: One Dot:Two Dots:Three dots = 0:6:9, 0:6:12, 0:6:ALC, 0:9:18, 0:ALC:18
AW2	: AUTO, FAW
ZONE MODE	: STD, CINEMA
REC TIME	: REMAIN, ACCUM
LENS TRIG	: NONLOCK, LOCK

3 CONFIRMING MESSAGES

The Status Display mode 0 and mode 1 special Function Indications are present while each function is engaged.

In addition the following messages appear briefly for confirmation while various functions are turned on or off.

White Balance:
WHITE BAL AUTO 1, WHITE BAL AUTO 2,
WHITE BAL FAW, WHITE BAL PRESET
AUTO WHITE1 (OR 2) OPERATION, AUTO WHITE1 (OR 2) COMPLETED

Black Balance:
AUTO BLACK OPERATION, AUTO BLACK COMPLETED

Filter:
FILTER 3.2K, 5.6K, 5.6K+ND, FILTER EFFECT (KY-27 only)

Gain:
GAIN 0dB, 6dB, 9dB, 12dB, 18dB, GAIN ALC

Shutter:
SHUTTER 1/100 (U version) / 1/120 (E version), 1/250, 1/500, 1/1000, 1/2000, SHUTTER NORMAL

Variable Scan:
SHUTTER
1/60.1 – 1/2084.6 (KY-19 U version)
1/50.1 – 1/2067.8 (KY-19 E version)
1/60.1 – 1/2074.6 (KY-27C U version)
1/50.1 – 1/2061.8 (KY-27C E version)

Iris:
IRIS OVER, IRIS NORMAL, IRIS UNDER

LOLUX:
LOLUX ON, LOLUX OFF

Zebra:
ZEBRA ON, ZEBRA OFF

Full Auto Shooting:
Full Auto ON, Full Auto OFF

CAMERA SET UP

CONTOUR	NORMAL
M BLACK	NORMAL
IRIS DET	NORMAL
GAIN	0 : 6 : 9
AW2	AUTO
ZONE MODE	STD
REC TIME	REMAIN
LENS TRIG	NON LOCK

4 VIEW FINDER ABBREVIATIONS

ACCUM.	— Total Time with Record Trigger On
AUTO	— Auto White Memory mode
ALC	— Automatic Level Control for Iris and Shutter
APB	— Automatic Average/Peak Balance
AVG	— Average exposure detection mode
AW2	— Auto White Memory 2
CINEMA	— 16:9 Safety Zone ratio
CONTOUR	— Detail enhancement
EFFECT	— Cross Star Effect 3200 K (KY-27 only)
F	— Full Time Auto White engaged
FAS	— Full Auto Shooting engaged
FAW	— Full Time Auto White
G	— Gain engaged; 6dB, 9dB, 12dB, 18dB
I	— Iris Level Over or Under engaged
IRIS DETECT	— Detection mode on which subject exposure is based.
IRIS LEVEL	— Over or under exposure mode.
L	— LOLUX engaged
LENS TRIG	— Different Lens trigger modes
LOCK	— Lens trigger mode (Usually 8pin)
LOLUX	— Highest Electronic Gain
MANUAL	— White Balance control by Remote CCU
M BLACK	— Master Black
NONLOCK	— Lens trigger mode (Usually 12 pin)
NORMAL	— Normal
PEAK	— Peak exposure detection mode
REMAIN	— Approx. remaining Tape in minutes
S	— Shutter or Variable Scan engaged
SAVE	— VTR in power save mode
STBY	— VTR in standby to record mode
STD	— 4:3 Safety ratio
TAPE NEAR END	— Less than 3 minutes
ZONE MODE	— Safety Zone aspect ratio

3.2K	— 3200 Kelvin color temperature
5.6+ND	— 1/16 light admitted, 5600 K color temp.
<10	— Less than 10 minutes (Some VTRs, see page 27)
<5	— Less than 5 minutes (Some VTRs, see page 27)

2.4.7 LENS

A typical lens available with these camera is the Fujinon S14x7.5B12 for KY-19 and A14x10BRM-12 for KY27.

1 FOCUS RING

Manual focus ring.
Focus distance indicated.

2 ZOOM LEVER/RING

Manual Zoom ring with lever.
Deactivate Servo Zoom with switch 12.
Lens Zoom Length is indicated.

3 IRIS RING

Manual Iris ring
Deactivate Auto iris with switch 6.

4 BACK FOCUS RING

For Set-up Back Focus adjustment only.
Secure with the Screw knob.

5 MACRO FOCUS RING (CLOSE-UP)

Manually focus with this ring at ranges as near as 2 cm from the lens front with the ring turned completely clockwise.
Normal focusing and zooming not possible in this mode.

6 IRIS MODE SWITCH

A : Auto iris On and Remote operation.
M : Manual iris operation.

7 MOMENTARY AUTO IRIS

In Manual Iris mode (M), pushing this button activates the Auto Iris Function while it is held down only.

8 ZOOM SERVO CONTROL

Pushing this lever in the W direction makes the lens move wider.
Pushing this lever in the T direction makes the lens move tighter.
Pushing harder changes the speed of the Zoom. Turn this lever on with switch 12.

9 RETURN VIDEO (RET)

The E to E signal from the VTR attached or the Remote Control Unit can be monitored in the viewfinder while pushing this switch.
Viewfinder Status information is not available.

10 VTR TRIGGER

To start shooting push once.
To stop shooting push again.

11 REMOTE ZOOM/IRIS CONTROL CONNECTOR

For use with Studio or Teleconferencing remote control units.

12 ZOOM MODE KNOB

S : Servo Zoom On
M : Manual Zoom mode.

13 FILTER POSITION

Protect the lens with a 72mm/0.75 pitch Clear or UV filter by screwing on to the front inside of the lens hood.
Other filters can be used for various effects.

14 REAR LENS SURFACE

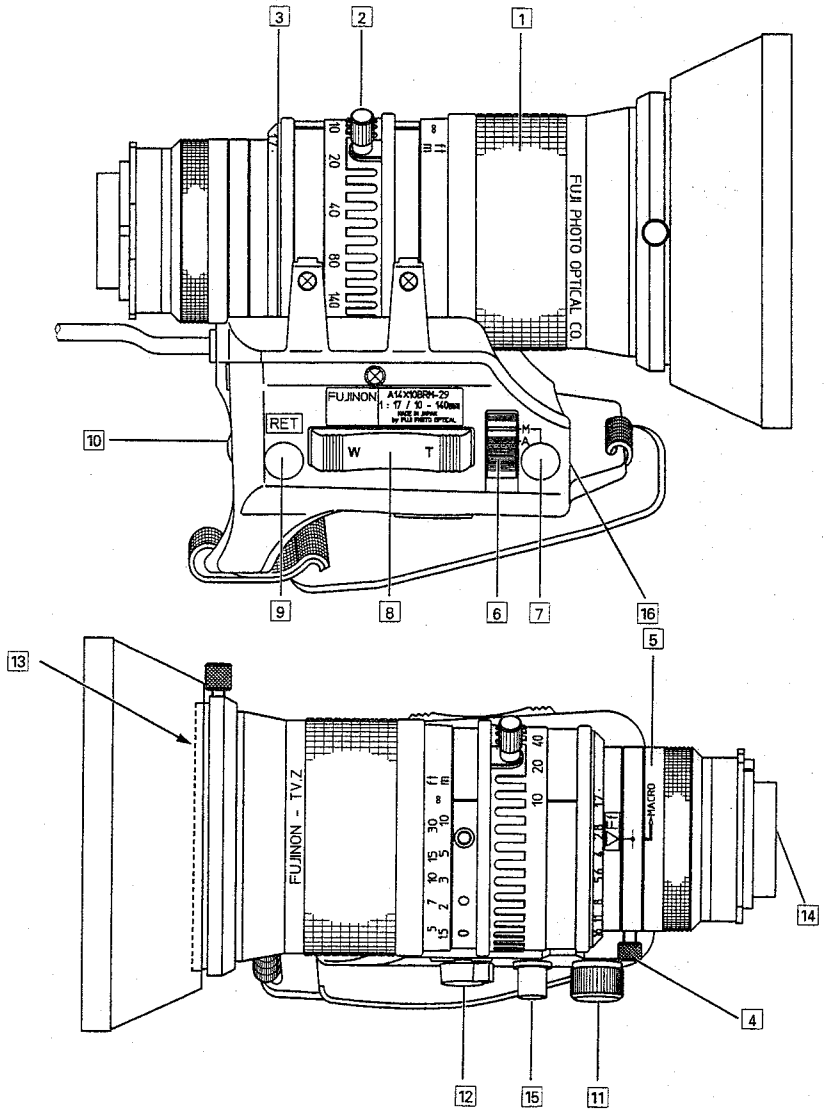
Protect with special cover.

15 REMOTE FOCUS CONTROL CONNECTOR

To connect with an optional focus servo unit.

16 S.

Iris speed adjusting potentiometer.



3 OPERATION

3.1 POWER SUPPLY

There are five methods of supplying power to KY-19/KY-27:

KA-27 or Docked VTR Master Power switch set to DC:
- AC Power Adapter through KA-27/VTR 4pin DC plug
- 12V DC Battery through KA-27/VTR 4pin DC plug
- Battery Holder mounted on KA-27/VTR

KA-27 Master Power switch set to RM/VTR:
- VTR through multi pin cable
- Remote Control Unit RM-P200 or RM-P300 through multi pin cable

3.1.1 TYPICAL BATTERY POWER USAGE

The camera, viewfinder and KA-27 adapter power use is 12.4W. An 2.3 ampere hour battery should last about 110 minutes powering the camera alone.

A typical docked VTR can use between 8.5W and 16W DC power. The camera and viewfinder alone use about 11.9W.

An average 2.3 Ampere/Hour Flat shape type battery should last between 40 and 70 minutes based on the VTR.

Additional use of the Lens Zoom will reduce battery life.

Additional use of the Save function will extend battery life.

This chart is for expected battery life.

This configuration is for the KY-19/KY-27 with Lens and the VF-P115 Viewfinder. Portable VTR's are with the KA-27 adapter.

Sony battery times based on Sony Literature.

WATTS	DOCKED/PORT.VTR		BATTERY	BAT TIME
54.4	27	KR-M440	5ah BATT	80
41.4	27	BVW-50	BP-90	>90
31.4	27	BR-S405/411 port	NB-G1	30
29.3				
28.5	27	BVV-5 port	NP-1B	40
28	27	BR-S411 dock	NP-1B	40
27	27	KR-M240	NB-G1	40
25.4	27	BVU-150	2 NP-1B	90
26	27	BVV-5 dock	NP-1B	45
24	27	BR-S420C	NP-1B	55
22	27	PVV-1	NP-1B	60
20.9	27	EVV-9000 port	NP-1B	65
20.5	27	EVV-9000 dock	NP-1B	70
12.4	27	KA27	NP-1B	>110
11.9	27	VF ONLY	—	—

This table is for Typical and Maximum power usage. Typical power usage is for operation of normally adjusted camera. Maximum power usage is for extreme situations.

		Typical	
Camera Viewfinder	KY-19/KY-27 VF-P115	9.8W 2.3W	820mA 190mA
Subtotal		12.1W	1010mA
Camera Adapter	KA-27	.5W	40mA
Total		12.6W	1.05A

3.1.2 BATTERY CARE

1 Depending on the battery type, procedures to preserve the battery life are important.
With NiCad batteries such as NB-G1 and NP-1B the battery should be discharged down to the level that shuts off the camera before recharging.
Otherwise a memory condition will eventually limit the low end of the discharge level and reduce the battery operating time.
Check instructions for other types of batteries.

2 Before recording, recharge the battery pack. Several battery packs should be kept charged according to the length of time shooting in the field.
For NB-G1 batteries the AA-G10 sequential charger can handle the successive charging of 4 batteries. The AA-P250 can charge 1 battery at a time.
The AA-G10 also has a 4Amp power capacity for supplying 12V DC to the camera.

3 The Battery level can be monitored using the STATUS 1 DISPLAY. Press the DISPLAY button up in the DISP. SELECT position once.
The camera is set to turn off at 10.5 volts.
Check your VTR manual for minimum VTR levels.

4 Low Battery levels are indicated by flashing overlay warning message and red "BATT" light for camera voltage.
A flashing Green "ALARM" Light indicates Low VTR voltage.

5 Do not leave the battery pack in a place subject to high temperatures. This could damage the battery beyond repair.

6 Keep batteries warm (around 72 degrees F) when shooting under cold conditions. Battery use is restricted when cold.

3.1.3 THE STANDARD BATTERY HOLDER FOR NB-G1 AND FLAT SHAPE TYPE BATTERIES.

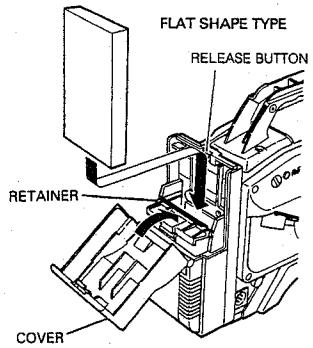
1 Press the release button to open the cover.

2 For NB-G1 use swing out the battery retainer.
For Flat shape type use the retainer should be shut.

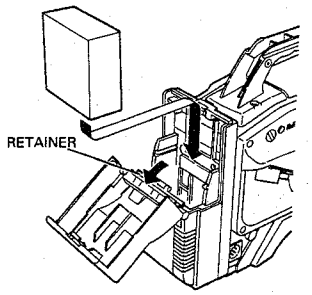
3 Install the battery pack with the terminals facing the camera.

4 With NB-G1 batteries close the battery retainer, and then close the cover.

For Flat shape type batteries close the cover.

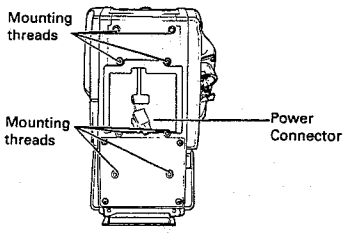


NB-G1



3.1.4 OTHER BATTERY HOLDERS

Battery Holders from other manufacturers can be mounted for internal battery use using provided mounting threads and power connector.
Remove the standard Battery Holder first.



3.1

3.1.5 AC POWER ADAPTER AA-P250 AND CABLE

1 Connect the AA-P250 power to the KA-27 camera adapter or the VTR using the 4pin power cable supplied with the AC power adapter.

2 Set the Charge/Camera switch on the AA-P250 to Camera.

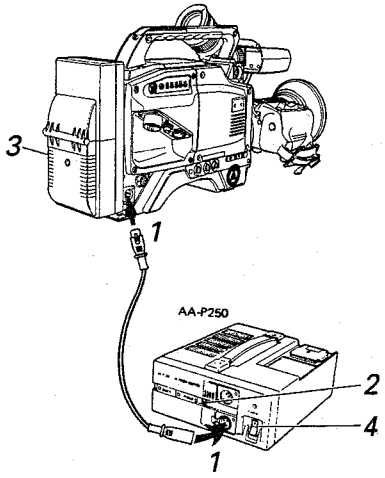
3 Set the Master Power Switch on the KA-27 or VTR to "DC INPUT".

4 Turn the AA-P250 power switch to ON.

It is normally advisable for AC power to use the AA-P250 Power supply.The AA-P250 Power and 3Amp current capacity is correct for possible loads, even when configured for docking.

The AA-G10 power supply and charger has a 4Amp current capacity and is advisible for MII power demands.

IT IS ADVISABLE NOT TO USE POWER UNITS OTHER THAN SPECIFIED; OTHER WISE THE RECORDER MAY STOP DUE TO A TEMPORARY DROP IN SUPPLIED POWER .



3.1.6 POWER FROM A PORTABLE VTR

Power from certain portable VTRs can be supplied through the multipin cable of the KA-27 adapter. The Master Power Switch of the KA-27 must be set to VTR/RM.

Please note that some Component or Digital portable VTRs can have power consumptions in the range of 42W to 65W when planning battery and AC power supply needs.

Set the master power switch to DC to power the camera independently.

3.1.7 POWER FROM OPTIONAL REMOTE CONTROL UNIT

The RM-P200 and RM-P300 Camera Control Units supply power through the multipin cable. The Master Power Switch of the KA-27 must beset to VTR/RM.

Set the master power switch to DC to power the camera independently.

EVERY DAY BEFORE SHOOTING (BASIC OPERATION) 3.2

This section discusses all camera head related set up functions.

For use with a VTR see Section 5.1 or 5.2 after setting up the camera with this section.

3.2.1 INITIAL SET-UP PREPARATIONS

1 POWER ON

1. First place a charged battery in the battery holder or connect DC power to the DC input.
2. Turn the AC power adapter on.
3. Switch the Master Power Switch to DC.

2 SAVE/ON

Turn the OPERATE switch to the SAVE/ON middle position.

3 AUTO IRIS ON

Initially set the Lens iris control to Automatic.

Later take advantage of the Monentary Iris control to activate the cameras exposure system when needed.

4 FILTER SELECT

Choose the proper filter Selection for the lighting conditions

5 LEFT SIDE SWITCH POSITIONS

A. Iris Compensation switch, set to normal.

B. Shutter switch set to off position

C. Gain switch set to 0dB. The single dot position is always OdB. (detail dots)

D. MODE switch set to CAM

E. W-BAL switch set to 1 or 2.

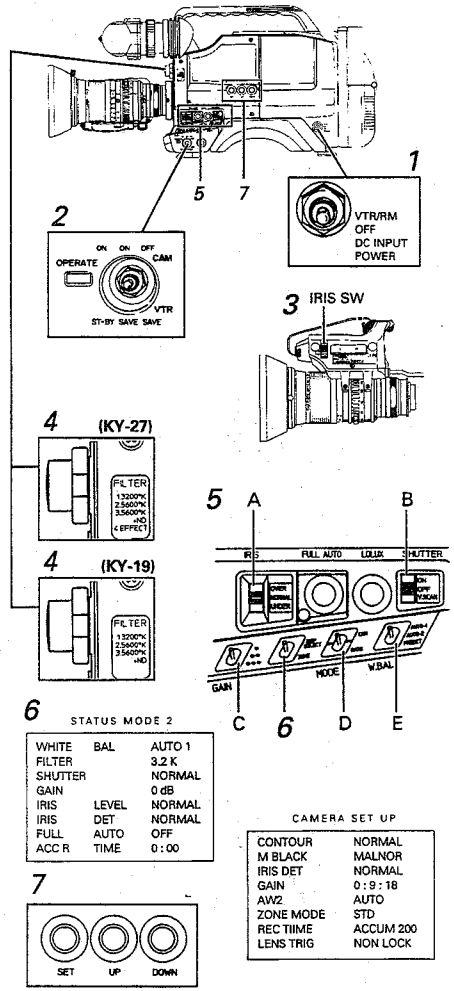
6 CAMERA STATUS

Check by pressing the DISP. SELECT switch up twice. This screen should be visible, with the settings as indicated. Press again to eliminate the display.

7 CAMERA SET-UP

Check by pressing the SET switch twice.

This screen should be visible with the settings as indicated. The display will automatically disappear after 5 seconds.



8 RIGHT SIDE SWITCH POSITIONS

A. Return Video switch set to Off.
WARNING:
IF RETURN SWITCH IS ON, STATUS DISPLAYS ARE NOT VISIBLE WHILE VTR IS IN RECORD OR RECORD/PAUSE.
Activating Set-up and Function changes override Return Video. The viewfinder will switch back to camera video.

B. Camera microphone audio channel designation.
1. Set switch to STEREO for different audio to be recorded on Channel 1 and 2 with a docked VTR. A Mono microphone records on channel 1 (Left) only.
2. Set switch to MONO for identical audio to be recorded on Channel 1 and 2 with a docked VTR.
3. Portable VTRs only receive the left channel of a Stereo camera microphone, so the MONO position is advisable.

9 KA-27 SWITCH SETTINGS

A. This chart shows the **KA-27 Adapter settings** for various portable VTRs.
RGB signals are not output in VTR mode.

* AG-7400 will record B/W without setting switch 44 to Y/C.

** Set the cameras OPERATE switch to ON/ST-BY to start recordidng. If Set to ON/SAVE or OFF/SAVE the VTR will not start recording, unlike other 3/4" VTRs.

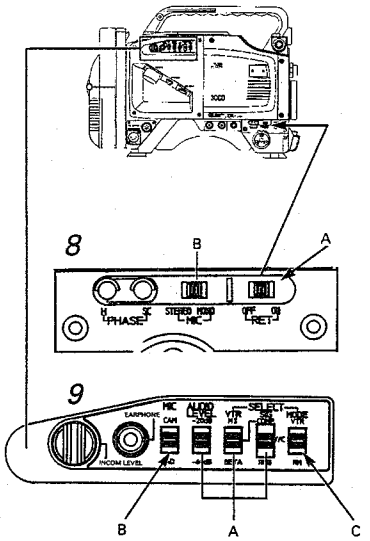
B. Set the **CAM/AD switch**.

CAM: If the camera microphone input is used.
AD: If the KA-27 Adapter microphone input is used.

C. Set the **VTR/RM switch**

VTR: For VTR
RM: For remote control unit.

NOTE: When S-VHS portable VTR is connected, it is recommended to use −20dB audio output on camera and H input level (−20dB) on VTR.



TYPE	1	2	3	4
VTR TYPE	PRO-SVHS Hi8 3/4" VHS BR-S422 BR-S411 BR-S405 AG-7400* EVV-9000 VO-8800 BVU-150 CR-4900L** AG-6400	MII KR-M460	BETACAM^{R} BVW-35 BVW-50	VHS BR-6200 BR-1600
SWITCH				
AUDIO OUTPUT LEVEL -20/-60dB	MATCH VTR	MATCH VTR	MATCH VTR	-20dB ONLY
SELECT VTR COMPO-NENT	—	MII	BETA	—
SELECT SIGNAL	Y/C	COMPO-NENT	COMPO-NENT	—
TRIGGER	—	—	—	Internal Switch

3.2.2 VIEWFINDER ADJUSTMENT

Adjust the viewfinder to the operator's eyesight and shoulder position for the best comfort.
Next adjust the brightness and contrast for the viewing conditions.
(See section 2.4.4)

3.2.3 BACK FOCUS ADJUSTMENT

It is only necessary to perform this when focusing is not correct in both the Telephoto and Wide-angle positions, such as when the lens is attached for the first time.
Adjust the viewfinder for sharpness first.
It is easier to adjust back focus when the subject is more than 3 meters from the subject.

1 Set the Iris mode to M (Manual)

2 Set the Zoom mode to M (Manual)

3 Open the Iris ring to F1.4. If the illumination is to strong, reduce it or move to a darker place.

4 Turn the zoom lever until the lens it completely telephoto.

5 Focus on the subject. There is a specific chart that looks like a dart board which is helpful.

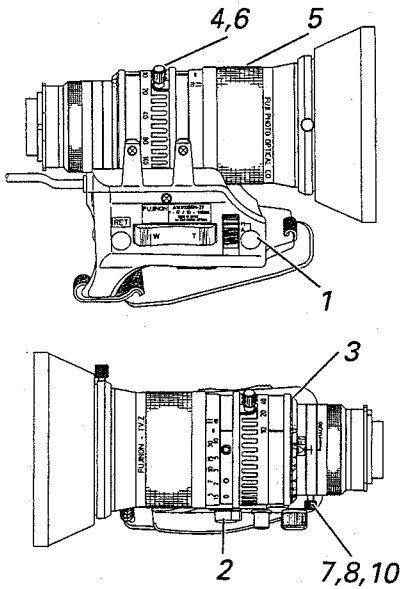
6 Set the lens to completely Wide-Angle.

7 Loosen the back focus ring retaining knob.

8 Adjust the back focus ring for the best possible focus.

9 Repeat steps 4 through 8 for fine adjustment.

10 Tighten the back focus ring retaining knob to secure the ring.



3.2.4 LENS OPERATION

1 FOCUSING

The lens is designed to have the best focus if you focus first in the Telephoto position and then frame your shot with the necessary Wider Zoom angle.
If the shot does not remain in focus see the previous section on Back Focus adjustment.
The lens is the sharpest in the middle Iris positions.

2 ZOOMING

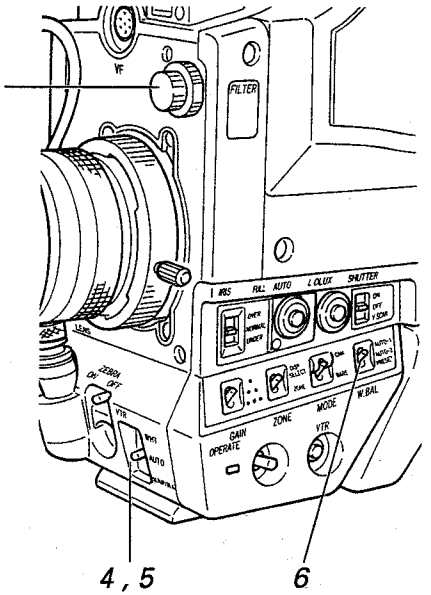
Similar to focusing, if you adjust the camera position with the lens in Telephoto the subject will remain centered while changing zoom angles.
The Servo Zoom has different speeds. The more you push on the lever the faster the Zoom speed. A very slow rate is possible with a light touch.
Wide angle shots appear more stable when moving. Following a moving subject can also help with the appearance of stability.
Telephoto shots usually need a tripod for stability.

3.2.5 AUTO WHITE/ BLACK BALANCE

Adjust White Balance:
- When the type of light source changes before or during shooting.

Adjust Black Balance:
- When the unit is used for the first time each day.
- After a long period of storage.
- When ambient temperature has changed dramatically.

The last Black and White balance settings are kept in memory even if the camera is turned off.



1 Set the Iris to Automatic (A) or Manual, depending on the subject.
(The Iris will be closed automatically during Black Balance).

2 Fill the screen with a white object placed in the same position as the subject, and lit by the same primary lighting as the subject.

3 If the FILTER turret has not been set for the current lighting color temperature, do so now. See section 4.2.

4 For AUTO SETUP (both Black and White Balance) press the Auto switch in the down position momentarily.
If White balance is in Preset, Full Time Auto White (FAW) or Full Auto Shooting is selected, Black balance only will be performed.
Black Balance operation will be repeated after White Balance has been performed.

5 For White Balance only, push the switch in the up position momentarily.
During the process Auto Set Up, Black Balance or White balance "Operation" and "Completed" will show in the viewfinder.

6 FULL TIME AUTO WHITE

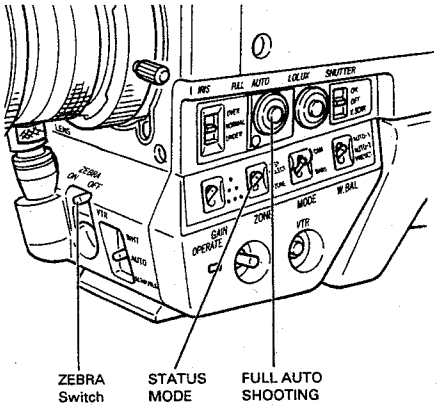
FAW can be assigned to the Auto White Memory 2 switch [12] position in the Camera Set-Up mode.
The color temperatures in the video image will be continuously analyzed and the proper white balance provided.
See section 4.2 and 4.10 for details.

Function Failures:
WHITE BALANCE/BLACK BALANCE function

AUTO WHITE 1, 2 OBJECT ERROR	Check whether the object being shot is white enough. Check the filter
AUTO WHITE 1, 2 OVER LIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected.
ERROR	Circuit trouble exists. Check with JVC service center.

3.2.6 ZEBRA PATTERN (VIDEO LEVELS)

Pressing this switch [20] turns on or off the Zebra stripe pattern in areas of highlights between 80 to 90 percent brightness on viewfinder screen.
If you cannot achieve a Zebra pattern by changing the Iris manually or Automatically in areas brighter than a subjects face, or in highlights in general, you should consider adjusting for greater gain.
If dark areas contain zebra patterns you should consider adjusting for a higher shutter speed or using the Neutral Density filter.



3.2.7 CHECK AUDIO

Make sure that audio is reaching the tape machine.
Listen through an earphone connected to the jack on the KA-27 adapter or the VTR. Check for the quality of the signal, the level, and the connections.
With Docked VTRs the audio levels can be monitored in the viewfinder in the Status mode 1.

The Audio level display is available only from some dockable VTRs.
VTRs without return audio or portable VTRs will not give an audio level display.
The viewfinder 0 dB level must be set to match the VTR meter 0 dB audio level.

Readings in dB:

-18 -12 -6 -3 0 +3 +6

3.2.8 FULL AUTO SHOOTING OPERATION

The Full Auto Shooting function allows the camera operator to go ahead and shoot immediately with no manual camera adjustment.
To record with this mode just activate the Full Auto Shooting switch [6], Zoom, Focus and Push the Trigger.
The camera is now ready to enter this mode with good results.
The Full Auto Shooting uses Enhanced ALC; Variable Shutter Speed (EEI) with Variable Gain (ALC). The Auto Iris is automatically activated even with the switch in manual to achieve good exposures over a wide range of lightning.
The Full Time Auto White function will keep White Balance correct under most conditions.

3.2

3.2.9 MOUNT CAMERA ON TRIPOD

The KA-510 TRIPOD BASE included with the camera must be used to secure the camera to a tripod or camera stand.

1 TRIPOD MOUNTING HOLES

Match A 3/8 or 1/4 inch Tripod Mounting Screw to the best hole for good balance.

2 TRIPOD MOUNT RELEASE

Pull back once to activate the front clip before mounting the camera.

Hold the camera, push the safety lever and pull this release lever to open the Base and release the camera.

3 SAFETY LEVER

Prevents accidental release. If the camera is secured in the Base, this release lever must be pushed in order to pull the release lever and open the Base.

4 REAR MOUNTING PIN

Make sure the rear mounting clip of the camera is firmly on the Tripod Base, so that the Rear Mounting pin can be engated properly.

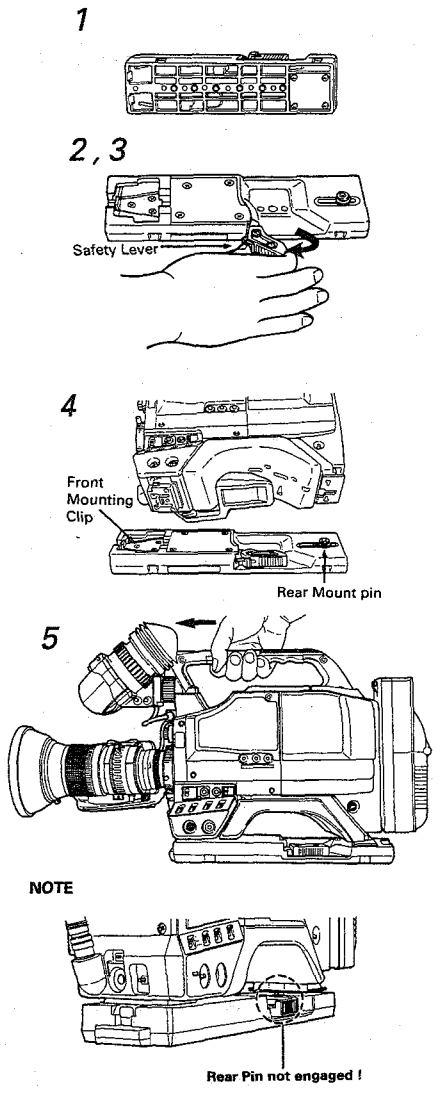
Slide the camera forward and down until the front mounting clip of the Base engages the front Mounting Wedge on the camera automatically with a click.

5 FRONT MOUNTING CLIP

Making sure the Rear Mounting Pin engages, Slide the front Mounting Wedge on the camera into the front Mounting Clip of the Base until it engages automatically with a click.

DO NOT REMOVE YOUR HAND FROM THE CAMERA UNTIL YOU ARE SURE IT IS SECURE.

NOTE: Double check that the rear pin is engaged properly.



3.2.10 STARTING THE VTR

It is now time to start the VTR. See sections 5.1 and 5.2 for Docked and Portable VTR use.

TROUBLESHOOTING 3.3

1) WHITE BALANCE/SET UP/BLACK BALANCE PROBLEMS

VIEWFINDER DISPLAYED ERRORS

AUTO WHITE 1, 2 OBJECT ERROR	• Check whether the white balance object being shot is white enough. • Check that the Filter Turret is correctly set for the lighting conditions.
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO WHITE 1, 2 OVER LIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected
ERROR	Circuit trouble exists. Check with JVC service center.

OTHER PROBLEMS:

COLORS ARE NOT CORRECT IN FULL TIME AUTO WHITE

- Check the overall color balance. **If one solid color predominates this can cause an error.**
- White balance may shift perceptably when the gain is increased or decreased. Try to white balance in the mode that you expect to shoot.

2) VTR ERRORS

VIEWFINDER DISPLAY: VTR OP MISS?
VTR OPERATION MISSED.

- The Docked JVC SVHS VTR has not been placed in Record/Pause mode. Press the Record and Play buttons to activate Record/Pause.
- The Camera/VTR switch [2] is in ON/SAVE. The Save function stops head rotation and turns off the power to the circuitry in JVC Professional SVHS decks.
- Check the Operate switch on SVHS Dockable VTRs. This activates the SAVE function.
- A regular VHS cassette has been inserted in the SVHS mode. Change the mode on the VTR.
- The Stop button on the VTR may have been pressed instead of the Camera VTR Trigger.
- Check for missconnection.

OTHER VTR PROBLEMS:

NO RECORDING

- NO RECORDING may be due to a cassette with a safety tab removed.
- Do not trigger the VTR from the ON/SAVE mode. The professional SVHS VTR will display the "VTR OP miss?" error display. It is better NOT to trigger other VTRs from the ON/SAVE mode because the record light and other status messages may display wrong information. A Hi8 VTR, for example, does not have a save mode.
- After setting the VTR to save using the camera operate switch. Do not manually use the VTR operate switch to put the VTR back stand-by mode. It is possible that the VTR will not go into "REC" mode, even though the trigger is pushed and display "REC" on the viewfinder.
- If the VTR does not start Check the lens trigger setting in camera set up.

POWER PROBLEMS

- Low capacity power unit can cause some VTRs to shut off. Use specified power unit.
- Ejecting a tape may not occur until after a limited period of time from turning the power on.
- If you switch the power off within one second after the cassette holder is opened, it may not be closed fully.
- The cassette cannot be ejected if the power supply is too low.

BAD PICTURE FROM VTR

- Still pictures or pictures in search may vibrate vertically, have noise or become monochrome. This is normal
- Under severe vibration the VTR may not record or play back.
- When recording in the VHS mode on a SVHS tape previously recorded in the SVHS mode, Searching or editing the S-VHS recordings is not possible.
- No audio is available in search mode

ACCUMULATED RECORD TIME

Is approximate only. There may be a slight ifference because of the time for the VTR to enter record mode.

3) VIEWFINDER SCREEN DIM OR DARK

- Check the viewfinder contrast and brightness controls.
- Check if the filter turret is set to 5600 +ND.
- Check if the Iris is shut.
- Check if the Shutter speed is set too high.
- Check the viewfinder cable

4) FOCUSING IS NOT THE SAME IN TELE OR WIDE

- First check that the lens is solidly seated
- Then perform backfocus adjustment

5) GENLOCK IS NOT POSSIBLE WITH A VTR PLAYBACK

This is not possible unless a Time Base corrector is used.

6) HIGHER LEVELS OF GAIN WILL GIVE GREATER NOISE IN THE PICTURE

FAS, and ALC can increase the noise as the gain is increased.

7) PICTURE IS FLICKERING

Some lighting conditions may cause a flicker.
50 hertz power will cause a flicker for NTSC.

3.3

- For NTSC try adjusting to 1/100 shutter speed.
- Try Variable Scan to reduce flicker.

8) AUDIO CHANNELS NOT WORKING

Audio can only be recorded from the camera mic in stereo on a stereo Docked deck.

In the stereo position a mono microphone will record on the left channel only.

9) AUTO IRIS IS NOT STABLE

- The lens iris adjust speed may be set to high or low.
  The lens supplied from the JVC factory is set correctly for the iris servo system. The adjustment is behind the small port marked "IRIS GAIN" on the front of the servo/ lens grip, and should be performed by an authorized JVC service representative.
- Similarly, the Dynamic Shading function is adjusted to compensate for the lens supplied with KY-27.
  An authorized JVC service representative can reset this function.
- If Enhanced ALC is used in the Manual Iris mode for Aperture Priority, the response time of the Automatic level control may not be as fast as when the Enhanced ALC is used in with the Automatic Iris.
- The range of the Manual Aperture Priority is the equivalent of 5 F-stops, while the automatic Iris Enhanced ALC mode has a range the equivalent of 11 F-stops. This should be considered when shooting in a high contrast environment.

10) CCU TROUBLESHOOTING

Video Problems

Poor color reproduction:
Is the SC Phase control adjusted correctly?

The Monitor Does not synchronize:
Is the mode switch on the KA-27 Camera adapter set to RM?
Is a reference video signal being sent to the Genlock input connector?
Is a VTR signal being used for a reference?
Is the reference signal a proper composite video or black burst signal? Computer signals will not genlock.

Control problems

Tally Light is not working:
Is power supplied to the tally input terminal?
Is the internal trigger type switch in the correct position?

Intercom communication is not working:
Is the impedance of the headset appropriate? (headphone 200–600 Ohms)
Is the KA-27 mode switch set to RM?

The auto set-up indicator does not light:
Is the color temperature filter correct?
Is the subject being shot the a solid color?
Are all the cables connected correctly?

11) FUNCTION PRIORITIES

LOLUX ON

LOLUX function has priority over Gain, but Full Auto Shooting will lose only the Variable shutter and Variable Gain functions. Settings will default to the last value and switch position of the shutter switch, including Variable Scan.

FULL AUTO SHOOTING
Full Auto Shooting has priority over Gain, Shutter, Variable Scan, White Balance.

SHUTTER ALC
Automatic Level Control has priority over Shutter, and Variable scan.

IRIS OVER/UNDER
Is Totally independent of LOLUX or FULL AUTO SHOOTING.

FULL TIME AUTO WHITE
Full Time Auto White has priority over White Balance.
Full Auto Shoot also engages Full Time Auto White and has priority.

WHITE BAL PRESET
Preset mode has priority over White Balance.

WHITE BALANCE / AUTO SET UP
Has priority over STATUS displays, and RETURN video.

ST-BY
Standby is displayed in STATUS MODE 1 position whether or not a VTR is connected, or in the RECORD / PAUSE mode.
This reflects the OPERATE switch position only.
Pressing the VTR Trigger under these conditions will cause the display to show "VTR OP MISS?"

ACCUMULATED AND REMAINING RECORD TIME
are not displayed in play back mode.

WARNING PRIORITY:

When two malfunctions occur at the same time this order determines the display.

VTR OP MISS?	Message only This will always be visible in addition to other warnings (Only docked S-VHS VTRs)
Priority 1. VTR WARNING	Green light blinks Some VTRs do not return signals to camera
Priority 2. TAPE NEAR END	Green light blinks Only docking Betacam,MII
Priority 3. LOW BATTERY	Red or Green light blinks

12) SYSTEM RESET

SEE SECTION 4.10.10 PAGE 59 TO RESET ALL CAMERA SETUP AND FUNCTION CONDITIONS TO THE DEFAULT SETTINGS.

ADVANCED OPERATION 4

SELECTING FUNCTIONS FOR DIFFERENT SHOOTING CONDITIONS 4.1

This simple chart lays out conditions and functions to use for them.

	CONDITION	FUNCTION
1	A sudden event, no time to set up.	Full Auto Shooting
2	Changing light color balance.	White Balance, Filters
3	Moving between predictable complex lighting environments.	White Balance Memories
4	Light color balance will change unexpectedly while moving, or over time.	Full Time Auto White
5	A bright daylight environment, Lens is always at F16 or high shutter speeds are being used by Enhanced ALC. Less depth of field is preferred.	Use [3] filter 5600K + ND. This will lower the F-stop range by four F-stops.
6	The subject matter has bright lights or shiny surfaces in the background. The subject is under exposed.	Average Iris Detect mode Iris Override, Over mode
7	The subject matter is brightly or evenly lit, with important detail in the highlights.	Peak Iris Detect mode Iris Override, Under mode
8	The subject is moving between differing contrast environments. There will be no time to adjust camera.	Auto Peak/Average Balance Iris Detect mode
9	A bright light close to the subject.	Iris Override, Under mode
10	The subject is surrounded by darkness.	Iris Override, Over mode
11	A bright light in the edge of the scene.	No special setting, Multizone Iris Weighting will compensate.
12	Night or Emergency shooting conditions.	LOLUX
13	A fixed depth of field is needed.	Aperture priority
14	Fluorescent lights flicker.	1/100 shutter speed (U version) 1/120 shutter speed (E version)
15	High speed objects that need to be played back in slow motion and seen sharply.	Shutter priority
16	Computer monitor has flicker bars or data flickers.	Variable Scan
17	High speed objects are flickering, or need to be isolated or frozen in motion.	Special High Shutter Speeds (Variable Scan Mode)
18	The camera will be sending RGB output.	RM-P200 or RM-P300 CCU is needed
19	The subject has very low or high contrast. The Camera must match a different video source.	Adjust the Master Black level (Check image on monitor first)
20	The Subject has too little or too much detail, low or high contrast.	Adjust Contour (detail) (Check image on monitor first)

4.2 WHITE BALANCE ADJUSTMENT

4.2.1 SUMMARY DISCUSSION AND COLOR TEMPERATURE

White balance is necessary because there are many different colors and combinations of colors to be encountered in lighting.

Video white balance is very precise, and can correct for some difficult conditions such as fluorescent lighting or underwater shooting that are very hard to adjust for by filters alone.

It is very important to pay attention to the basic source of the light.

A good example of a tough situation is theater lighting, where many combinations of colored lights are used, and incandescent lights are the basic source.

The incandescent lights change color when they are bright or dim, and spot lights often are a completely different color temperature than the basic lighting.

This is often the case in the real world as well, where outdoor light from a window is often mixed with incandescent and Fluorescent, all of which have extremely different fundamental color make-ups.

The best strategy is to make one color or type of light dominant. This simplifies the task of mixing colors and often if the subject is correctly colored the background color distortion is not as objectionable.

This can be done as simply as paying attention to positioning the subject so that one lighting source is strongest.

It is very important to keep track of the strategies used in order to maintain continuity in a scene. It is often very difficult to compensate later for an error in technique or lack of control.

4.2.2 WHITE BALANCE FEATURES

There are some basic tools this camera has to take care of white balance:

1 Automatic White Balance

If it is possible the white balance should be adjusted frequently with the same target placed as close as possible to the subject.

2 Automatic White Balance Memories

The two White Balance Memories can be used to pre establish a good white balance and then rapidly switch between them while shooting.

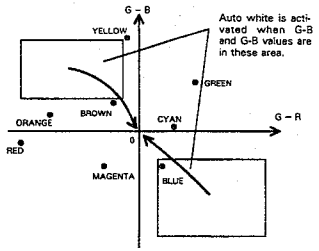
3 Full time Automatic White Balance

This function detects large changes in the Red and Blue fundamental colors in the image and then compensates to give the appropriate white balance, with proper skin colors as a control.

The color signal is divided up by the camera into three signals; Green for Intensity, Green minus Blue, and Green minus Red. This is one form of component color system.

There is a general principle that differing color temperatures change nearly along an axis running between the Yellow/Orange region and the Blue region.

The G-B and G-R values are then kept close to the 0 value, away from areas that are too Blue or too Yellow/Orange.



This mode is very good when there is no time to take new white balance settings and the camera is constantly moving in and out of different lighting environments.

However if a field of view tends toward a single color this technique can be misled, such as when an off-white room is encountered. There are many different colors for off-white.

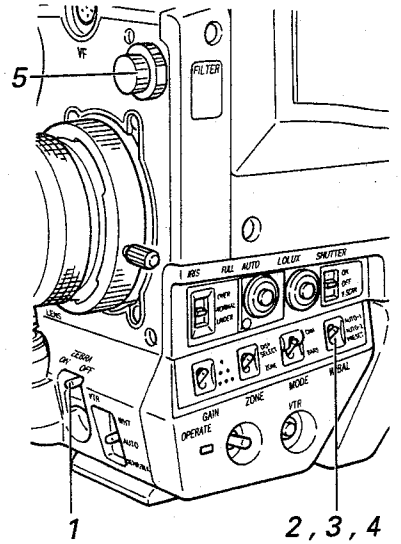
It is best to test this use before hand.

4 Preset White Balance

The factory preset white balance is 3200 degrees Kelvin. This is the temperature of normal incandescent lighting. It is also the color temperature of outdoor light just before sunset. It is close enough to most indoor lighting colors that if other methods are not possible it can get a descent result.

5 Internal Filter Choice

Filter No.	Function
1	The #1 position is a clear filter that gives the most sensitivity to low lit situations with incandescent lighting.
2	In the #2 position the factory preset neutral condition is then modified by an "orange" appearing filter that compensates for the "blue" outdoor light. This is the 5600 kelvin setting for the filter turret. If there is trouble getting a good balance outdoors, using the Preset 3200 k setting with a 5600 K degree filter can provide a dependable white balance. However lighting outdoors changes hour by hour so care should be taken with this practice.
3	The #3 position is admits 1/16th of the light to the CCD. This is very useful for extremely bright conditions such as on beaches or in snow. This filter is set at 5600 K primarily for use with outdoor scenes. The depth of field of outdoor scenes is reduced as well.
4 (KY-27 only)	The #4 position is a 4 way Cross Filter that gives a cross shine to highlights. Experiment with this to give added feeling to a scene. This filter is set for 3200 K. If the White Balance or Full Auto White function is not accurate enough in the day light you should use an "outdoor light" external filter mounted on the lens filter to help the white balance adjust for 5600 K color temperatures.



6 External Lens Filter use

When possible it can be very rewarding to experiment with filters mounted on the front of the lens. There are many photographic filters designed for very specific lighting conditions and special effects.

A UV FILTER tends to reduce haziness from water suspended in the air. It also protects the lens with no visible picture distortion.

A SKY LIGHT FILTER tends to warm up faces and keep backgrounds from becoming too blue. This also protects the lens with no visible picture distortion.

A POLARIZER FILTER can dramatically reduce reflected light and highlights from reflections. The contrast of the sky can be increased, and shine on tree leaves can be reduced. Water and glass can be made transparent. (However this filters effect depends on the rotation of the lens and the angle with the sun)

NEUTRAL DENSITY FILTERS can help to preserve depth of field by reducing the amount of light. The ND filter of this camera is tied to the 5600 K outdoor color temperature.

#85 OUTDOOR FILTER This filter is designed to adjust the outdoor color temperature to match devices and film designed for 3200 K incandescent lighting.

NO.	Color temperature	Shooting condition
1	3200 K	Studio/Nightime
2	5600K	Cloudy weather / Outdoors in rain / Indoor with fluorescent lamp
3	5600K+1/16ND	Outdoors in daytime
4	EFFECT (KY-27 only)	Cross

4.2.3 BASIC OPERATION:

Adjust White Balance:
When the type of light source changes before or during shooting.

Adjust Black Balance:
When the unit is used for the first time each day.
After a long period of storage.
When ambient temperature has changed dramatically.

The last Black and White balance settings are kept in memory even if the camera is turned off.

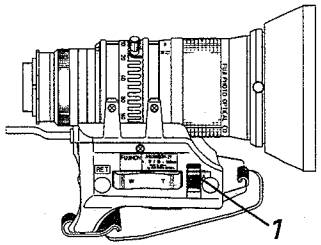
White balance will not occur during these modes:
- Full Auto Shooting
- Full Time Auto White
- White Balance Preset

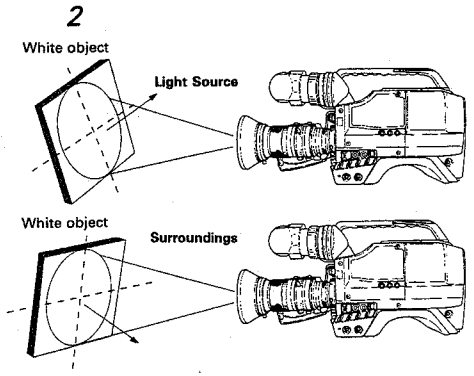
STEPS:

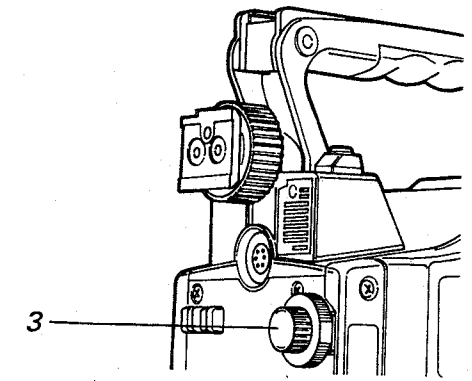
1 Set the Iris to Automatic (A) or Manual, depending on the subject.
(The Iris will be closed automatically during Black Balance).

2 Fill the screen with a white or grey object placed in the same position as the subject, and lit by the same primary lighting as the subject.
For example in very mixed lighting the target should be perpendicular to the lens.
When there is a very strong point source of light angle the target toward that light source.
When there is a very broad source of light, angle the target toward the surroundings, as the reflected light contributes to the subject lighting also.

3 If the FILTER turret has not been set for the current lighting color temperature, do so now.
At night there are many different artificial light sources. Experiment taking white balances under the 3200 and 5600 K settings and then switching the filter to see which gives the best impression.
But if the subject is a person try to white balance in a traditional fashion unless an effect is desired.
By white balancing in the 5600 K mode and shooting in 3200 K you can give a scene a warm feeling.
By white balancing in the 3200 K mode and shooting in 5600 K you can give the scene a colder bluer feeling.





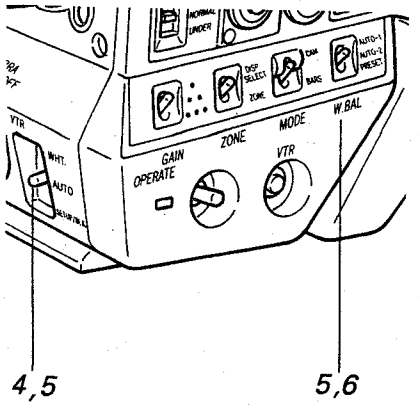


4 For AUTO SETUP (both Black and White Balance) press the Auto switch in the down position momentarily.
If White balance is in Preset, Full Time Auto White or Full Time Auto shooting is selected, Black balance only will be performed.
Black Balance operation will be repeated after White Balance has been performed.

5 For White Balance only, push the switch in the up position momentarily.
The White Balance will be stored in either AUTOMATIC WHITE BALANCE MEMORY 1 or 2 depending on the current setting of the W. BAL memory switch.

- During the process Auto Set Up, Black Balance or White balance "Operation" and "Completed" will show in the viewfinder.

6 FULL TIME AUTO WHITE can be assigned to the Auto White Memory 2 switch position in the Camera Set-Up mode. The color temperatures in the video image will be continuously analyzed and the proper white balance provided. See section 4.10 for camera set-up.



4.2.4 ERROR MESSAGES

These messages will indicate failure to perform white or black balance.

AUTO WHITE 1, 2 OBJECT ERROR	Check whether the object being shot is white enough. Check the filter
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO WHITE 1, 2 OVER LIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected
ERROR	Circuit trouble exists. Check with authorized JVC service center.

AUTO WHITE
OBJECT ERROR

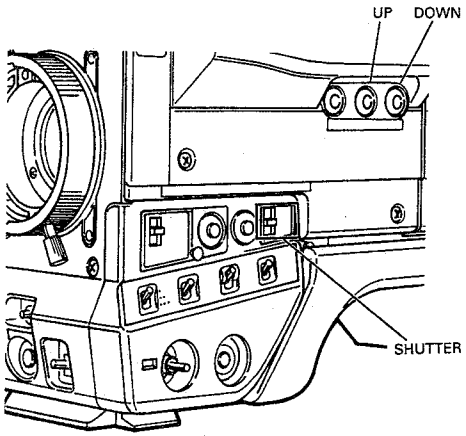
4.3 ELECTRONIC SHUTTER PRIORITY

The normal operation of this camera assumes a shutter priority mode, where the aperture and possibly gain are used to adjust for different lighting levels.

The basic shutter speed is 1/60 of a second for NTSC (U version), 1/50 of a second for PAL (E version).

This is the center or normal/off position of the SHUTTER switch.

Higher shutter speeds are obtained by shortening the period that the chip collects and saves signals from light within the normal 1/60th (U version), 1/50th (E version) of a second video field duration.



4.3.1 BASIC OPERATION

OFF:

This mode corresponds to the standard 1/60 NTSC setting.

SHUTTER:

This mode allows setting of different Shutter speeds.

To change shutter speed push the UP or DOWN SET Button after placing the SHUTTER switch in the up and ON position.

The range of shutter speeds cycles between:

→ 1/100 (U version), 1/250,1/500, 1/1000, 1/2000 ←
1/120 (E version)

To change the shutter speed again, press the UP or DOWN buttons again to activate the display, and a second time to change the speed.

4.3.2 WHEN TO USE

A shutter speed of 1/60th second (U version), 1/50th second (E version) is too slow to prevent blurring from normal actions when as subject is moving. This gives a smooth and natural effect when watching motion normally, but in certain applications the video is to be displayed in slow motion or as a freeze. The blurring in this case reduces the possible sharpness of the image.

As one increases the shutter speed the amount of light collected is less and less, so consideration should be given to the effects of opening the iris and increasing gain.

Opening the iris reduces depth of field and causes foreground and background objects to go out of focus. This is a useful artistic technique.

But increasing gain also increases video noise, so care should be given to the quality of the image needed.

VARIABLE-SCAN 4.4

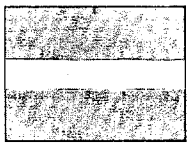
4.4.1 SUMMARY

This mode helps adjust the shutter speed to match the scan rate of a display or computer monitor.

The mismatch of scan rate to shutter speed causes a light horizontal over-exposure bar in the monitor if the computer refreshes the screen faster than the camera shutter speed.

If the scan rate of the computer screen is slower than the camera shutter speed there will be a dark under exposure bar in the monitor.

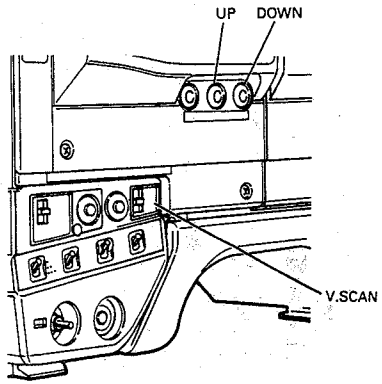
Moniter Screen



The monitor scan rate frequency can change for many reasons while running the computer, so try to watch a planned sequence in the viewfinder to make sure the rate is stable during the shot.

The scanning frequencies may change because of:

- Different Software
- Software changing mode during operation
- Different brand or model of computer or monitor running the same software
- Different brand or model of display card with the same type of computer or monitor



4.4.2 BASIC OPERATION

Place the SHUTTER switch down in the V.SCAN position and then use the UP or DOWN SET Buttons to adjust the speed.

In U version, there are 255 increments starting with 1/60.1 to 1/2084.6 for KY-19 and 1/60.1 to 1/2074.6 for KY-27C.

In E version, there are 305 increments starting with 1/50.1 to 1/2067.8 for KY-19 and 1/50.1 to 1/2061/8 for KY-27C.

The effect will be to shrink the dark or light horizontal flicker bar. When the bar is the thinnest is the best setting.

To change Variable-Scan speed again, press the UP or DOWN buttons again to activate the display, and a second time to change the speed.

4.4.3 RANGE OF FREQUENCIES COVERED

IBM "CGA" standard displays are near the lower limit for modern computer monitors at 15.75 kHz Horizontal scanning frequency and a 60 Hz Vertical Scanning frequency, similar to NTSC.

NTSC (U) versions of the camera will not be able to access computer monitor rates as low as some 50 Hz Vertical frequency monitors.

The best thing is to experiment under the guideline that a light flicker bar means the shutter speed is too low and a dark flicker bar means the shutter speed is too high.

4.4

Some computer monitors have longer Phosphor decay times. This tends to reduce the flicker effect, so test first.

Most computer monitors should fall within the first 100 steps.

4.4.4 THIS CHART IS FOR SOME POPULAR COMPUTERS

This chart, compiled in part from the Inline Corporation "Computer Video Handbook" is for some popular computer monitor and card combinations.

There are many, many more different frequencies and the best bet is to develop your own records of what setting works best.

4.4.5 SPECIAL APPLICATION HIGH SHUTTER SPEEDS

If you experience a bad flicker at high shutter speeds in lighting or other repetitive images try adjusting the Variable scan mode.

COMPANY STANDARD		CAMERA	MONITOR	
		V. SCAN	Fhor. kHz	Fvert. Hz
Television	PAL			50
	SECAM			50
	NTSC		15.7	59.95
IBM	CGA	59.95	15.7	60(Shut.Nor.)
	MDA		18.1	60
	EGA	59.70	24.1	60
	PGA	60.06	30.5	60
	VGA mode 1		31.5	60
	mode 2		35.5	60
	mode 3	70.086	35.5	70
	XGA = VGA and mode 4		50.0	80
APPLE	AppleII		15.7	60(Shut.Nor.)
	Mac		22.2	60
	MacSE		22.2	59.9
	MacIISI,IICI,LC mode low		24.5	60
	mode hi	66.667	35.5	66.6
	MacII,IIX	66.667	35.5	66.6
	Quadra		35.5	60
COMMODORE	Amiga		15.7	60(Shut.Nor.)
VARIOUS WORK STATIONS				
SILICON GRAPHICS	4D/220		64	60
HEWLETT PACKARD	HP-340		64.5	60
IBM	6091		69	50
DEC	VRT19		70.7	66.5
SUN MICRO SYSTEMS	model 2		76	
NCD	16,16E		82.9 70	70

GAIN 4.5

4.5.1 SUMMARY

The gain function boosts the signal from the CCD sensors.

The pyramid of dots stands for the different sensitivity levels. Two dots and Three dots can be changed in the Camera Set-Up menu (see section 4.10)

One dot: Always equals the 0dB gain up position
Two dots: When Set up for either Enhanced ALC or +9dB,
Three dots: Is Set UP for +18dB.

Two dots: When Set up for +6dB
Three dots: Can be Set Up for either Enhanced ALC, +9dB, and +12dB.

GAIN chart

•	0dB*				
••	ALC (0 - 18 dB)	9dB*	6dB		
•••	18dB*		ALC (0-18dB)	9dB	12dB

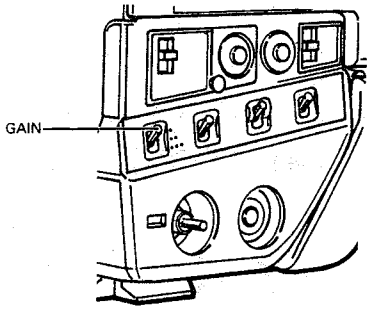
* Factory Setting

4.5.2 OPERATION

Simply switch between the different settings.

If it is not possible to get a Zebra video level reading in areas brighter than peoples faces it may be advisable to begin to use gain to adjust for the light conditions.

Higher levels of output gain result in a decrease in the signal to noise ratio and resulting in a noisier picture; so it is usually advisable to try to keep to 0dB gain up. For every dB of Gain up there is a corresponding reduction of the signal to noise ratio.



4.5.3 ALC

ALC mode is an Aperture Priority AUTOMATIC LEVEL CONTROL mode that can be programmed into the two dot or three dot position in the Gain switch [9].

Gain in low light and the Shutter speed in high light conditions are continuously varied to achieve good video signal levels based on the Automatic or Manual Iris settings.

ALC in Auto Iris extends F2.0 sensitivity from 125 lux down to 16 lux between 0 dB and +18 dB gain.

The F16 operating range is extended from 8000lux up to 32,000lux.

This expansion is the equivalent of 3 Fstops of low light range and 2 stops of bright light range to give a total range similar to 11 Fstops.

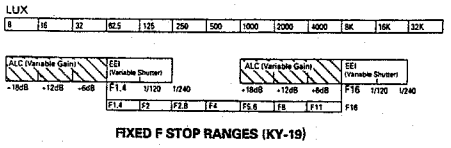
ALC is also engaged during FULL AUTO SHOOTING.

When the Iris is set to Manual the Gain and Shutter speed will vary continuously from the fixed Fstop setting.

This very useful function can be used to hold the depth of field constant even though lighting conditions are changing.

In Manual Iris at F1.4 the exposure range is extended from 62.5 lux at 0 dB down to 8 lux.

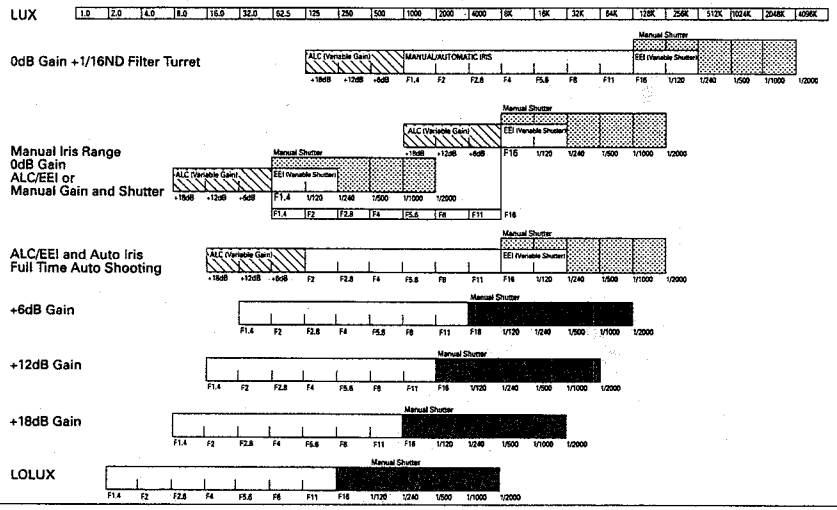
The speed of reaction in manual is gradual, so practice to learn the characteristics.



FIXED F STOP RANGES (KY-19)

4.5

4.5.4 GAIN, FSTOP AND SHUTTER SPEED RANGE (KY-19)



4.6 LOLUX

With this function a good dynamic range of brightness will be captured even under conditions where it is difficult to see with the human eye.

Because this is a 3 CCD chip camera the color rendition will also be true to life.

LOLUX enables shooting at approximately 1 lux or 0.1 footcandles (KY-27), 2 lux or 0.2 footcandles (KY-19) at F1.4. One footcandle is the equivalent of the amount of light cast by one candle at a distance of one foot.

It is similar to a +33 dB (KY-27C), +30 dB (KY-19) gain up position.

The basic underlying principle of LOLUX is to combine the light gathering capacity of the CCD chip.

The signal to noise ratio and the resolution are reduced, but it is possible to shoot subjects otherwise impossible.

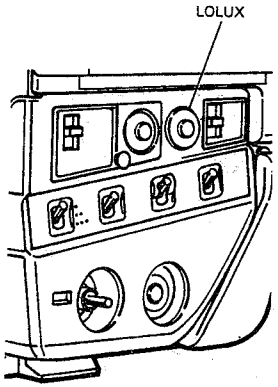
BASIC OPERATION:

Push the LOLUX button [7] momentarily to engage the function. Push again to release.

The regular GAIN settings will be inactive, but the Auto Iris and Shutter will operate normally.

ALC and LOLUX do not work together. When LOLUX is engaged the Shutter defaults to the previous settings.

In FULL AUTO SHOOTING MODE the only the Auto Iris and the Full time Auto White remain engaged.



IRIS 4.7

The Iris system is the primary function in adapting various light levels to good video signal levels. The actual physical Auto Iris changes the Lens Iris position based on the Exposure Detection mode.

Automatic functions such as Variable Shutter or Variable Gain stem from the Iris setting, whether the Iris is in automatic or manual mode.

Understanding the way the camera detects light in the scene will help the camera operator take the best advantage of the various functions.

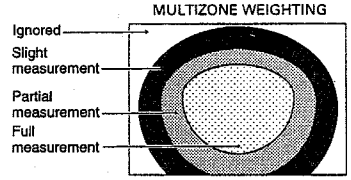
4.7.1 MULTIZONE DESIGN

The exposure detection system used for the Auto Iris is based on a multizone pattern that assigns a priority according to the probable important subject area.

Further from the center zone of these fields the importance of a bright object is less, and therefore will not disturb the automatic settings unnecessarily.

To visualize the multi zone in the viewfinder, hold the VTR trigger switch on the front while turning power on to the camera, with the OPERATE switch.

Turn off the camera to clear the display.



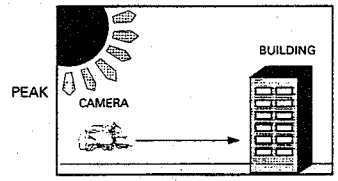
4.7.2 EXPOSURE DETECTION MODES

Since the dynamic range from dark to bright of possible lighting conditions exceeds that of any camera, the camera operator should make a judgement about the type of lighting on the subject of the scene.

There are four basic categories of lighting conditions that the KY-19/KY-27 can accommodate with these settings: Peak, Average, Automatic Peak/Average Balance (APB), and Normal.

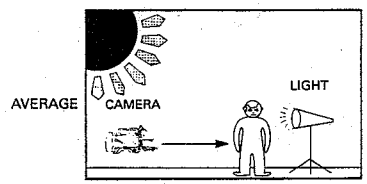
A. Peak

A fixed weighting ratio of 75% peak and 25% average. For use when it is important to capture detail in the highlights of the subject, and the subject dominates the whole scene.



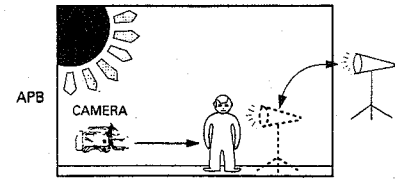
B. Average

A fixed weighting ratio of 25% peak and 75% average. For use when the subject material has bright highlights that are less important than the average exposure.



C. APB

Automatic Peak and Average Mix Ratio. In this mode the camera varies the Peak to Average weighting ratio governing the iris based on typical shooting conditions, and the multizone priority system.



4.7

D. Normal

A fixed weighting ratio of 50% peak and 50% average. This setting is for shooting under conditions with varied lighting that is not changing.

For reflected light this is close to the brightness of a white person's skin.

4.7.3 IRIS OVER/NORMAL/ UNDER

This switch [5] can be used to adjust the exposure system to Over or Under expose by about one half F stop.

Many conditions can cause the detection mode to expose high or low. Here are two examples.

USE OVER:

A back lit scene such as a person in front of a window, or a bright light in the scene will tend to be under exposed for areas lit reflectively.

USE UNDER:

A front lit scene such as a person under a bright local light or a spot light on a stage will tend to be over exposed.

THIS FEATURE OPERATES TO WITHIN ONE STOP OF IRIS FULLY OPEN OR CLOSED.

4.7.4 IRIS OPERATION

In normal operation the detection setting is not changed, but it can be modified using the Camera Set-Up menu set to IRIS DETECT.

DETECTION SET-UP:

Press the SET switch [13] twice to enter the Camera set up menu.

Continue to press the SET switch until the cursor reaches IRIS DET.

Use the UP and DOWN switches [14] to cycle between the four modes: Peak, Average, APB (Automatic Peak/ Average Balance), and Normal.

ENGAGING AUTO IRIS:

There are two methods to turn on the auto iris function.

A. AUTO IRIS SWITCH

Lens switch [6] on the lens servo sets the automatic iris continuously on or off.

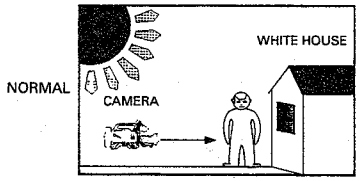
A: Auto iris On and Remote operation.
M: Manual iris operation.

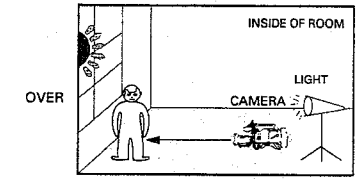
B. MOMENTARY AUTO IRIS BUTTON

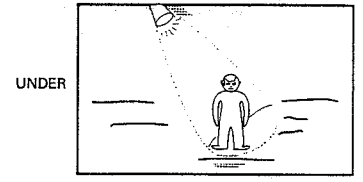
This button on the lens servo activates the Auto Iris Function while it is held down only. The Auto Iris Switch must be in the Manual Iris mode (M).

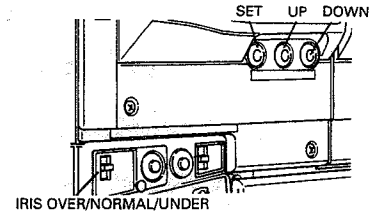
C. IRIS OVER/NORMAL/UNDER SWITCH

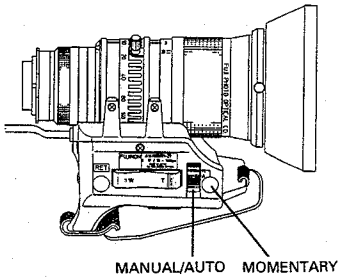
This Switch selects over-exposure by about one half F stop if pressed upward and under-exposure by the same if pressed downward.











FULL AUTO SHOOTING 4.8

The momentary Full Auto Shooting switch turns this function on and off, with an indicator light.

Next put the camera in ON/ST-BY and push the trigger button.

First the ALC combines the Auto Iris, Variable Gain and Variable Shutter Speed to control the exposure automatically.

The Gain will vary continuously to the maximum of +18 dB. The Shutter speed will vary continuously to the minimum of 1/240th of a second. The Iris will operate down to F2.0 and up to F16 before engaging the Gain or Shutter.

The AUTOMATIC AVERAGE/PEAK BALANCE function (APB) allows the KY-19/KY-27 to analyze if the scene is a Peak or Average situation and continuously vary its response according to changing conditions.

In addition the FULL TIME AUTO WHITE (FAW) function samples the spectrum of color temperatures in the image and determines the appropriate white balance, with proper skin colors as a control. See section 4.2 for further details about FAW.

Preconditions:

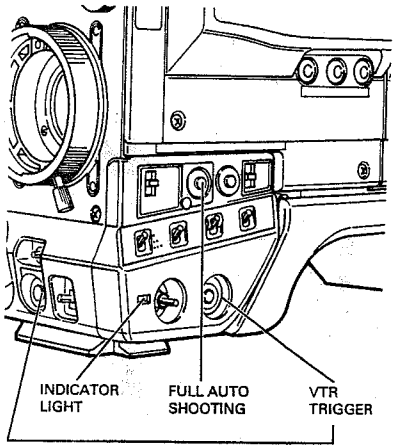
- The Filter turret should be set correctly for the current lighting conditions.
- The Camera Operate switch and the Trigger buttons Must be used to begin recording.

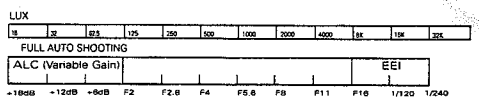
Priority:

- The Full Auto Shooting function has priority over many other functions:
- Gain, Shutter speed, Variable Scan, Manual Iris, White Balance, IRIS DETECT.
- The Auto Iris automatically turns on even if the lens switch is set to manual.

Independent functions:

- LOLUX will override the Variable Gain and the Variable Shutter functions of Full Auto Shooting. The Full Time Auto White and Automatic Iris functions remain.
- The Iris Over/Under switch is completely independent of Full Time Auto White.





FULL AUTO SHOOTING RANGE (KY-19)

4.9 ACCUMULATED RECORD TIME

Accumulated Record Time is the approximate total VTR record time in minutes and seconds. A common practice is to reset this to zero when a tape is inserted.

This indication is selectable for the center position of STATUS DISPLAY 1 mode, or for STATUS DISPLAY 2 mode. Remaining Record Time will swap positions with Accumulated Record Time between STATUS DISPLAY 1 and 2.

The time represents the period in Record mode between Trigger operation. The represented time is approximate because the VTR will give a delay before going in to record mode. The actual tape duration is not measured by this function.

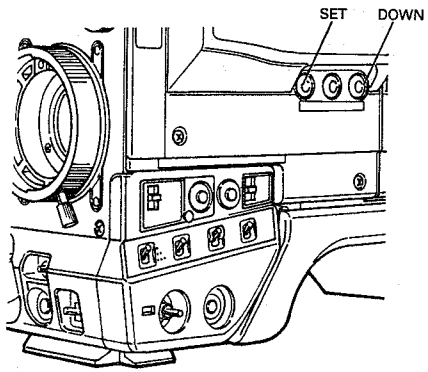
The use of fast forward, rewind search or play will not change the value.

When the current duration of recording is needed this timer can be reset to zero.

The ACCUMULATED RECORD TIME RESET/CAMERA SET-UP button has two functions, the first of which is Accumulated Record Time Reset to Zero.

- First Push the SET button once.
- Then Push the DOWN SET button once to set the current Accumulated Record time to zero. The Viewfinder will be cleared immediately.

This overlay mode is automatically cleared after 5 seconds if the time is not reset.



"VIEW FINDER"

ACC REC TIME RESET
12:00
PUSH "DOWN" BUTTON

CAMERA SET-UP 4.10

4.10.1 ADJUSTING CAMERA SET-UP

- Select by pushing the SET button twice.
- Continue to push the SET button to cycle through the Camera Set-Up Menu until a function is selected.
- Pushing the adjacent UP or DOWN SET buttons to select a new function condition.

This overlay mode is automatically cleared after 5 sec.

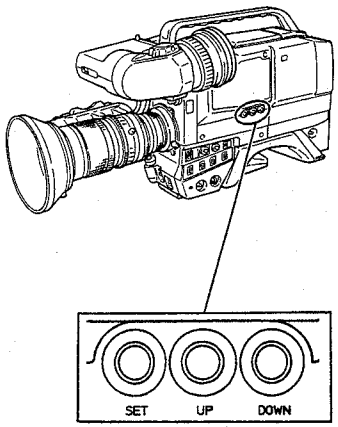
WARNING! This Mode will change a camera configuration setting if the UP or DOWN SET buttons are pressed.

CONTOUR	Is the amount of detail enhancement in steps from -10 to -1, NORMAL, 1 to 10 See this section for more details.
M BLACK	Is the pedestal level in steps from -10 to -1, NORMAL, 1 to 10 See this section for more details.
IRIS DETECT	Is the exposure detection mode. See section 4.7 for more details. AVG = Detected by average picture level. PEAK = Detected by peak picture level. NOR = Detected by mixed average and peak. APB = Automatic peak and average mix ratio.
GAIN	Always One dot: • = 0dB Two Dots and Three dots are selected as either: •• : ••• = 9:18, ALC:18, 6:ALC, 6:9, 6:12
AW2	The AW2 White Balance position can be assigned to: AUTO= Auto White Balance Memory 2 FAW = Full Time Auto White
ZONE MODE	The Safety zone aspect ratio can be set to: STD = 4:3 width to height CINEMA = 16:9 width to height
REC TIME	ACCUM = Status Mode 1 Accumulated Record Time Status Mode 2 Remaining Record Time REMAIN = Status Mode 1 Remaining Record Time Status Mode 2 Accumulated Record Time
LENS TRIG	NONLOCK: Most 12 pin lenses use this momentary mode to trigger the VTR. LOCK: Many 8 pin lenses use this constant mode to trigger the VTR.

CAMERA SET UP

CONTOUR	NORMAL
M BLACK	NORMAL
IRIS DE	NORMAL
GAIN	0 : 9 : 18
AW2	AUTO
ZONE MODE	STD
REC TIME	ACCUM
LENS TRIG	NON LOCK

DEFAULT SETTING



4.10.2 CONTOUR CORRECTION (DETAIL ENHANCEMENT)

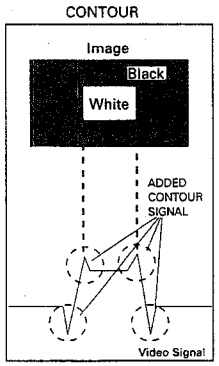
The amount of contour correction can be increased or decreased from the standard level.

Dark edges are made a little darker and Light edges are made a little lighter.

This can be very helpful to make low contrast scenes crisper.

If the scene originally has too much detail the contour correction can be reduced.

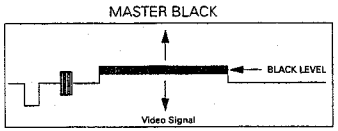
From this perspective it is better to keep the contour enhancement to a minimum, or test to see what happens to questionable scenes after post production and distribution.



4.10.3 MASTER BLACK LEVEL

The amount of contour correction can be increased or decreased from the standard level.

In NTSC cameras that have "Set-UP" (required by broadcast standards the black level cannot be reduced below 7.5 IRE.



4.10.4 IRIS DETECT

See the IRIS SECTION 4.7.2 for reasons to select the different exposure detection configurations.

4.10.5 GAIN (SENSITIVITY) ASSIGNMENT

See the Gain section 4.5 for a discussion of gain.

There are five gain selection assignments:
•:••:••• =0:9:18, 0:ALC:18, 0:6:ALC, 0:6:9, 0:6:12

GAIN chart

•	0dB*				
••	ALC (0 - 18 dB)	9dB*	6dB		
•••	18dB*		ALC (0-18dB)	9dB	12dB

* Factory Setting

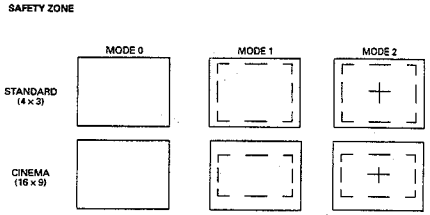
4.10.6 FULL TIME AUTO WHITE/ AUTO WHITE MEMORY 2

See section 4.2.2 for the principle behind Full time Auto White.

4.10.7 SAFETY ZONE

The Safety zones cycle within two different ratio types.

The Cinema mode is useful for determining the safety zone when cropping for 16:9 cinema ratio presentation.



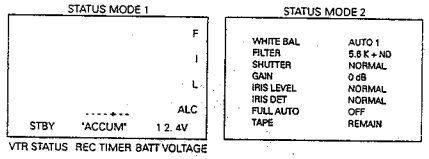
4.10.8 REC TIME

The Status 1 Display mode can show either Accumulated Record Time or Remaining Record Time.

The two categories swap position between Status 1 and Status 2.

Accumulated Record Time is measured from when the trigger is activated to when it is shut off. This may differ from actual tape time due to the delay for the deck to preroll and physically begin to record.

Remaining Record Time is an estimate of the remaining tape time based on the actual tape length.



REC TIME SET TO "ACCUM"

4.10.9 LENS TRIGGER

Different lenses have different trigger modes.

Most 12 pin lenses use the momentary NONLOCK mode to trigger the VTR.

Many 8 pin lenses use the constant Lock mode to trigger the VTR.

4.10.10 SYSTEM RESET

To quickly reset all camera setup values and function conditions back to the default settings, hold in the SET button while turning the camera power to ON with the OPERATE switch.

All functions with momentary switches will be reset.

All functions with mechanical switch positions will keep that switch setting.

White Balance Memories will not be affected.

See the chart for default conditions.

System Defaults	
Camera Setup	
Contour	Normal
Master Black	Normal
Iris Detect	Normal
Gain	0:9:18
Auto White Memory 2	Auto White Memory 2
Safety Zone Mode	Standard (4x3)
Record Time	Accumulated
Lens Trigger	Non Lock

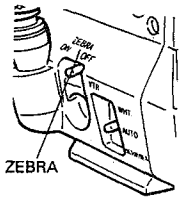
System Defaults	
Function Conditions	
Iris Over/Normal/ Under	Switch Position
Full Auto Shooting	Off
LOLUX	Off
Shutter ON	1/100
Variable Scan	1/60
Status Mode	Mode 0
Safety Zone	Off
Accumulated Record Time	00:00
White Balance Memories	No Change

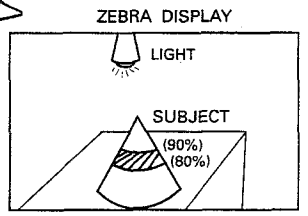
4.11 ZEBRA PATTERN (VIDEO LEVELS)

Pressing this switch momentarily turns on or off a Zebra stripe pattern in areas of highlights between 80 to 90 percent brightness in the viewfinder.

If you cannot achieve a zebra pattern in areas brighter than a operators face, or in highlights in general, you should consider adjusting for greater gain.

If dark areas contain zebra patterns you should consider adjusting for a higher shutter speed or using the Neutral Density filter.





4.12 LENS CLOSE-UP MACRO FUNCTION

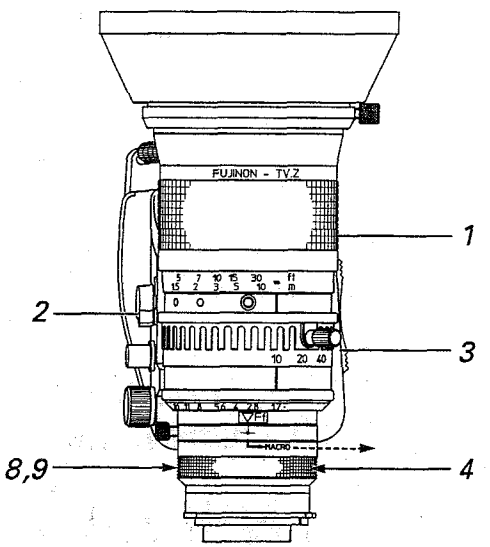
The Macro function of standard lenses used with the KY-27 allows the shooting of very small and very close objects.

The minimum distance from the standard lens to the subject is around 20 millimeters at the 10.0 widest angle zoom setting.

OPERATION

1. Set Focus to the Infinity position.
2. Select Manual Zoom mode
3. Set Zoom to the Widest angle position
4. Turn the Macro ring until it stops in the full Macro position.
5. Position the camera so as to give the necessary subject image size.
6. Now focus on the subject using the Macro Ring instead of the Focus Ring.

   The focusing range with the Macro Ring is from close to Infinity if the Focus Ring is in the Infinity position.
7. To make the object image size smaller reposition the camera.
8. Adjust the focus again with the Macro Ring.
9. 'Remember to disengage the Macro Ring when finished.



COLOR BARS, ADJUSTING EXTERNAL MONITOR 4.13

The color bar signal is activated by pushing the MODE switch down in the "BARS" position.

VTR and POST PRODUCTION USE

It is very important to record color bars at the beginning of every tape and after the camera setup has been adjusted.

Without recording color bars there is no good reference for all the colors levels or the dark to light range.

Later, varied and random adjustments of post production equipment could tend to distort the color, brightness and contrast of the picture.

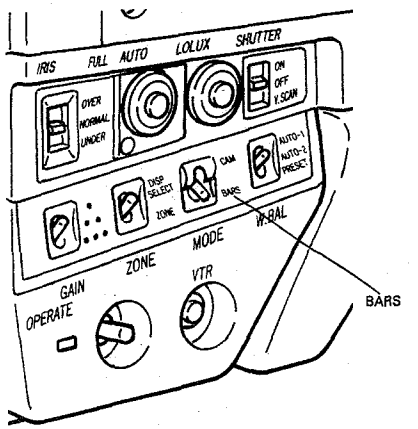
GENLOCK USE

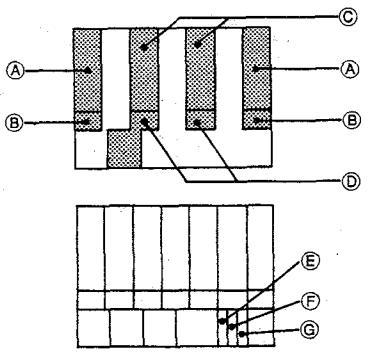
The color bars are also vital for setting the phase relationship of different cameras used in a multi camera system. See Genlock section 5.3.

MONITOR SET UP USE

Color bars are also the basic tool in setting a monitor's color, contrast and brightness set-up to reference levels. This is very important for knowing when to adjust the white balance of the camera.

1. Connect a color monitor to the cameras composite video out terminal.
2. Set the camera to Bars output.
3. Set the monitor to display the Blue only signal.
4. Turn the monitor's chroma control so that sections marked Ⓐ and Ⓑ are the same brightness.
5. Turn the monitor's hue control so that sections Ⓒ and Ⓓ are the same brightness.
6. Set the monitor to display all three colors, RGB.
7. Turn the monitor's Bright control so that section Ⓔ disappears and section Ⓖ just barely appears.





5 OPERATION WITH OTHER EQUIPMENT

5.1 OPERATING PROCEDURE WHEN DOCKED WITH PROFESSIONAL S-VHS OR OTHER VTRs.

First install the Dockable VTR with the correct adapter, or if necessary have your dealer install the VTR. See section 6 for installation instructions.

The complete basic camera preparation in section 3.1 and 3.2 and proceed to operate the system as a camcorder. (Shown by using BR-S422 VTR)

5.1.1 BASIC RECORDING OPERATION

1 VTR POWER ON

Install a charged battery pack or plug in the AC power adapter.

Set the Master Power Switch on the VTR to ON.

The VTR is now in Stop Mode and the head drum is not spinning. The Camera is off, but the Iris is held closed to protect the CCDs. Operate light is Dim Red.

2 TURN ON THE CAMERA

Switch the OPERATE switch ON/SAVE.

The viewfinder is now on. The camera auto iris will now open the iris. The VTR is still in the stop mode. If the status display is switched to mode 1, The viewfinder reads its STATUS as SAVE. Operate light is Bright Red.

3 PREPARE THE CAMERA

Perform basic use set up steps 3.2.1 up to 3.2.9.

This includes Switch setting, Set up, White balance, and tripod mounting.

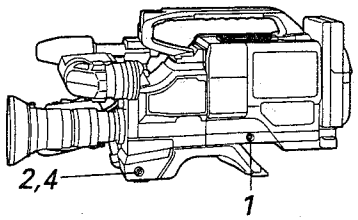
4 ENABLE THE CAMERA AND VTR

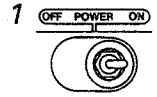
Change the OPERATE switch to ON/ST-BY.

Operate light is Bright Red.

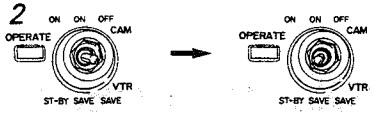
The VTR can be safely set in to record mode now. It is better to load a cassette after this step because the VTR can be commanded to load the tape around the heads without rapidly dropping the VTR into Save mode. Proceed to Save mode after determining that the tape is properly loaded.

If a tape happens to be in the VTR already the transition to the record Pause mode will be more controlled.





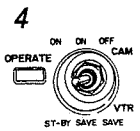
VTR POWER SWITCH



STATUS MODE 1

SAVE 00 : 00 1 2. 4V

VTR STATUS REC TIMER BATT VOLTAGE



STATUS MODE 1

STBY 00 : 00 1 2. 4V

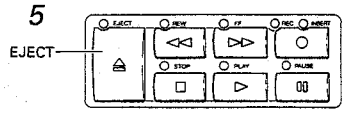
VTR STATUS REC TIMER BATT VOLTAGE

5 INSERT CASSETTE

Press the EJECT button to open the cassette holder. The eject indicator blinks.

Insert a cassette. Make certain before loading the cassette that the tape is not slack. Close the cassette holder slowly .

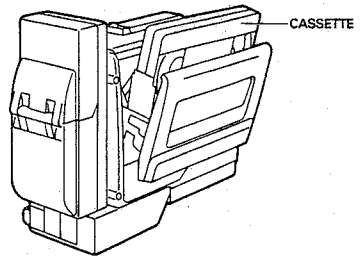
When ejecting a cassette, first engage the Stop or Record-Pause mode.



6 TO PROTECT TAPE

In the Record-Pause mode, the recorder automatically reduces the tape tension and drum rotation stops after about 30 minutes. If further recording is required, press the camera's VTR start/stop button, or press PLAY. The drum will start rotating and recording will restart after 8 or 10 seconds.

If you want to return to the Record-Pause mode when drum rotation has stopped, press the camera's VTR start/stop button twice.



7 SET UP SHOT

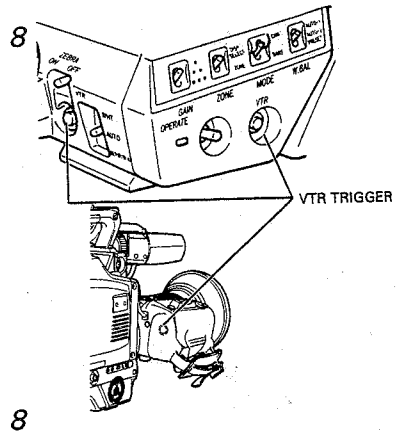
Adjust video image for focus and zoom angle. (see section 3.2.4 on lens use)

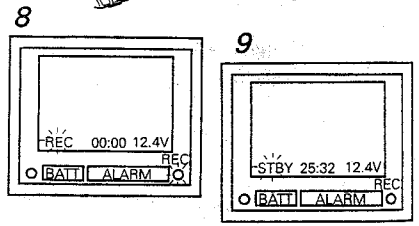
8 PUSH VTR TRIGGER TO RECORD

Push the trigger on the camera or lens.

The tape deck will enter record in about 2 seconds. The STATUS 1 viewfinder display will show the word REC.

The viewfinder REC/ALARM light will blink green during pre-roll and then turn solid when the VTR enters Record Mode.





9 PUSH VTR TRIGGER AGAIN TO STOP RECORDING

The VTR will return to Record-Pause Mode. The Green REC/ALARM LED will go out and the STATUS 2 message will change to STBY.

5.1.2 POWER SAVE OPERATION

After placing the VTR in record pause mode (steps 1 to 6) or after using the trigger to stop recording (steps 1 to 9), it is possible to save power by parking the heads of the VTR in record pause mode with the tape laced around the head drum.

Further power can be saved by turning the camera off in this mode.

(Hi8 decks have no power save mode)

10 SWITCH THE VTR TO SAVE

Switch from OPERATE "ON/ST-BY" to "ON/SAVE"

The VTR power is now off in Record Pause mode. A picture is visible in the viewfinder.

WARNING: Do not trigger the VTR in this mode (See page 41)

11 SWITCH THE CAMERA TO OFF

Switch from OPERATE "ON/SAVE" to "OFF/SAVE"
Both the Camera and VTR power are off with Tape laced on the video head drum in record-pause mode.

12 SWITCH THE CAMERA ON

Switch OPERATE from "OFF/SAVE" to "ON/SAVE"
The Viewfinder and camera turn on.

13 TURN THE VTR BACK ON

Switch OPERATE from "ON/SAVE" to "ON/ST-BY.
The VTR head drum is spinning again and Record-Pause Mode has been activated.

14 START AND STOP RECORDING

Push the trigger on the camera or lens to record, and again to stop recording.

5.1.3 SAFELY ENDING A RECORDING SESSION AND EJECTING

After entering Record-Pause mode through steps 1 to 6, 1 to 9 or 1 to 14 some care must be taken to end the recording session without damaging the tape.

15 UNWRAP THE TAPE FROM THE HEAD DRUM

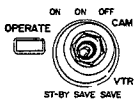
Open the VTR panel and push the stop button.
Switch the VTR to Stop mode.

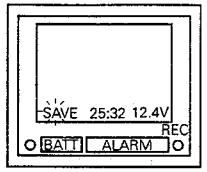
The Tape is unlaced from heads.

16 EJECT THE TAPE

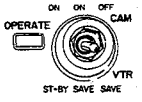
Press the eject button on the VTR to remove the tape.

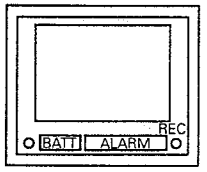
10



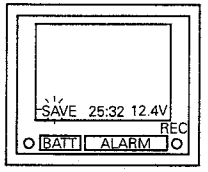


11

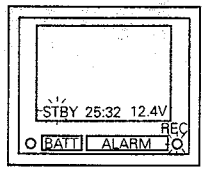




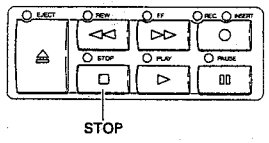
12



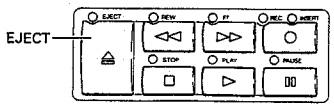
13



15



16



17 SHUT THE CAMERA OFF

Change the OPERATE switch to OFF/SAVE.

The Viewfinder and Camera will turn off.

18 SHUT THE VTR OFF

Switch VTR master power to off.

Ejecting the tape will not be possible after waiting until this step. Turn the master power back on to eject the tape.

5.1.4 MONITORING EE PICTURE

After the VTR has been placed in Record/Pause mode it is possible use the RET (Return Video) switch to monitor the video signal from the deck.

Pay attention to the REC/ALARM light in the viewfinder to check if Recording is on.

WARNING: The viewfinder STATUS DISPLAY MODES 1 and 2 are not shown in this mode. The VTR STATUS will not be shown in the viewfinder image. If there is no STATUS display in the viewfinder check this switch first!

EE stands for Electric to Electric. This means that the video signal is being sent back to the camera from the VTR, but before it is recorded on the tape.

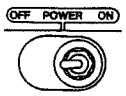
This is a safety position to make sure all the connections are correct, but does not let you know if the heads are dirty during recording.

5.1.5 MONITOR SOUND LEVELS AND SIGNAL DURING RECORD OR PLAYBACK

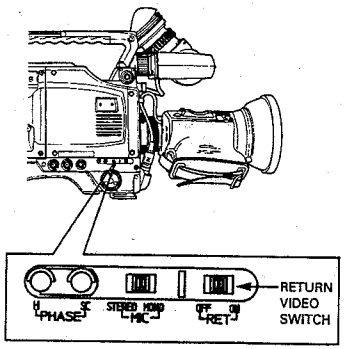
The audio signal level can be checked on the VTR audio level meter or in state display mode 1 in the camera's viewfinder. The audio signal can be monitored by a monitor speaker or an earphone. When the earphone is plugged into the earphone jack, the monitor speaker is automatically cut out. See the VTR instruction manual for details.

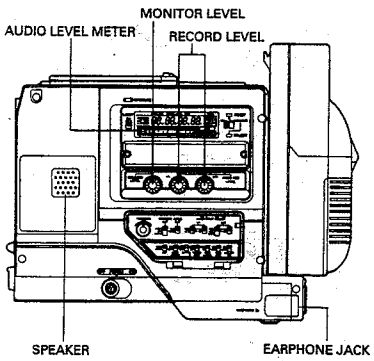
17

18



VTR POWER SWITCH





5.2 OPERATION WITH EXTERNAL VTR

5.2.1

The KA-27 Camera adapter allows the Stand-alone use of the camera:

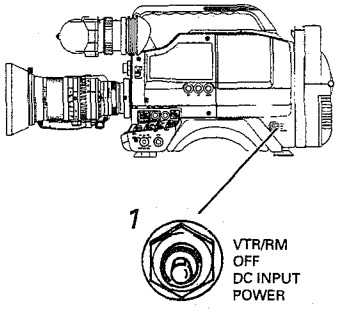
To power the camera so as to supply video directly from the KA-27 Y/C video output or the camera Composite video output.

To connect directly to a Portable VTR or Remote Camera Control Unit through the multipin connector.

The KA-27 adapter is not intended for use with any other cameras.

See section 3.2.1 chart on page 36 for an overview of the KA-27 switch positions.

5.2.2 KA-27 TYPICAL SWITCH SETTINGS

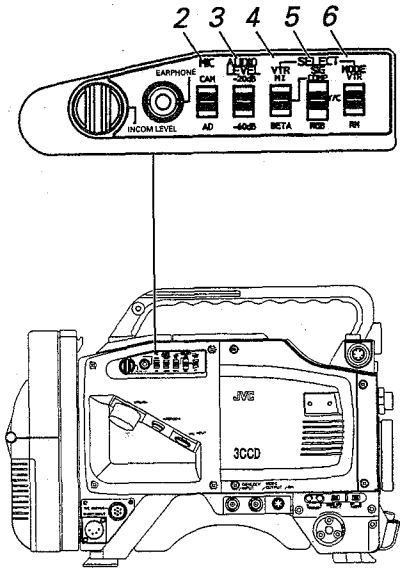


1 POWER MASTER SWITCH

Choose the power source:

VTR/RM: VTR power through Multipin connector.

DC INPUT: Power from onboard Battery pack or 4 pin DC input.
(The 4 pin input has priority over the on-board battery.)



2 CAMERA/ADAPTER MIC SWITCH

Choose the Camera mic input or the Adapter mic input.

3 MIC AUDIO OUTPUT LEVEL SWITCH

Match the Adapter Audio output level to the portable VTR input level, -20 dB line or -60 dB Mic level.

See chart page 36.

4 COMPONENT VTR MII/BETA SELECT SWITCH

Choose the MII or Beta standard Component output.

5 SIGNAL OUTPUT: COMPONENT/YC/RGB SWITCH

Choose one of these three signals to supply the VTR through the multipin cable.

A composite signal is always available in the multipin.

See chart page 36.

6 VTR/REMOTE CONTROL UNIT SWITCH

Set to VTR for any kind of VTR connection.

Note: Certain 10 pin connector VHS VTRs with Ground Start trigger modes require an internal adjustment to the KA-27. See the chart on page 36 and consult your service representative.

Internal power from AG-7400, AG-6400, BR-1600 is marginal and not advised.

These features are not available on some decks.

Remote control
Rec indicate
VTR alarm
Audio monitor
E to E video
battery alarm

5.2.3 KA-27 INPUT AND OUTPUT CONNECTIONS

Be sure to turn off the power while making connections.

1 VIDEO OUTPUT (Y/C 358 NTSC)(Y/C 443 PAL)

Video output is for Camera Video only. Return Video from the VTR, or Viewfinder STATUS are not available. This output is always active.

2 DC INPUT

12 V power connector selected by switch [1] and has priority over the Internal Battery Pack mounted on the back of the KA-27.

3 REMOTE CONTROL/VTR MULTIPIN CONNECTOR

See the chart for proper cables for different VTRs.

4 INTERCOM CONNECTOR

This is for talk back intercom use with the Camera Control Unit. The Headset should be configured with a connector with the proper tip/ring/sleeve configuration and headset and microphone impedance. This changes with different applications of the remote control units RM-P200 or RM-P300.

5 MICROPHONE INPUT (BALANCED)

Select this mic level only input with switch.

6 INTERCOM LEVEL CONTROL

Set the volume of the intercom headset

7 EARPHONE CONNECTION

Monitors the E to E audio signal returned from the VTR.

The VTR may need to be in record/pause mode for audio monitoring.

Some VHS Only VTRs do not send return Audio.

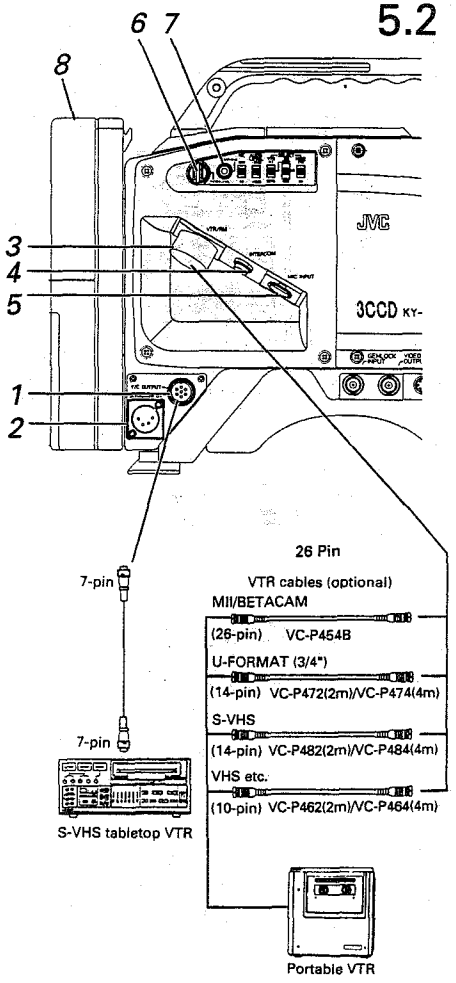
8 BATTERY HOLDER

The standard battery holder can be used for Flat shape type and JVC NB-G1 Batteries.

The 4pin 12V DC connector has priority over this battery holder.

5.2.4 VTR CABLE CHART

The VTR cables are shown in the Graphic.



NOTE: When S-VHS portable VTR is connected, it is recommended to use −20dB audio output on camera and H input level (−20dB) on VTR.

5.3 GENLOCK OPERATION

The genlock function is provided for synchronizing the camera video output signal with other cameras, switchers or devices.

The camera's signal can be adjusted relative to a reference black burst or composite video signal.

The video signal itself can be synchronized even if the camera is being used as a camcorder.

The camera can be genlocked through the external genlock input or through the camera remote control unit.

Phase adjustment

After supplying a genlock reference source, adjusting the two controls on the right side of the camera will conform the horizontal phase and color phase.

H:

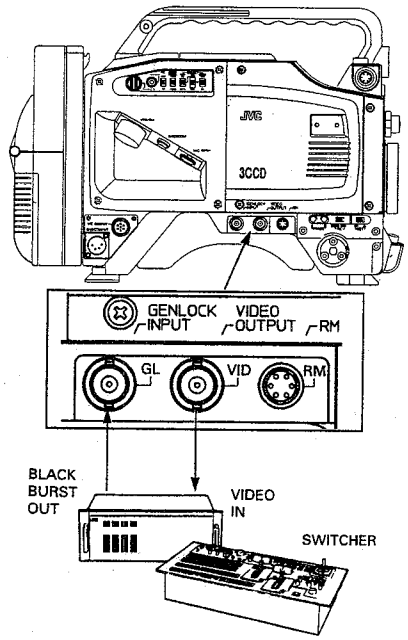
The **Horizontal Sync Phase** adjustment controls the position of the scan very precisely so that the reference and the output video are locating the scan at precisely the same point in the picture at the same time.

A badly adjusted horizontal sync phase can cause a complete failure to see an image, and minimally causes a horizontal shift between two similar pictures.

SC:

The **Color Subcarrier Phase** will precisely match the color hue of the reference and the video output. This phase relationship is described by 360 relative degrees, easily viewable with a color bars signal and a Vector scope.

The most precise adjustment can only be made with the use of external test instruments such as a waveform monitor or oscilloscope and a vectorscope, but the these settings can be approximated with careful examination of the picture.



5.4 REMOTE CONTROL UNITS

5.4.1 KA-27 SETTINGS AND CONNECTIONS

Before connecting the Remote Control Unit, make sure that all power switches are off.

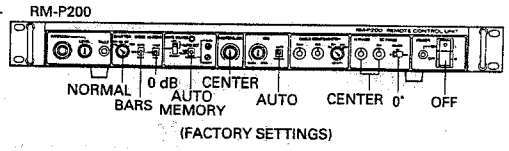
Select the needed signal; component, RGB or Y/C with switch [5] on the KA-27.

Select Component MII or Betacam signals with switch [4] on the KA-27. (See page 66.)

5.4.2 RM-P200

The RM-P200 is a versatile camera control unit that combines many features needed for studio or remote Stand-Alone operation.

Control and power is supplied for the camera to a distance of 100 Meters (325 feet) using the optional VC-P110 series camera cables. Cable Signal Level compensation is finely adjustable. Intercom connection and Tally trigger / indication are provided.



(FACTORY SETTINGS)

Camera control includes:

- Shutter speed
- Camera / Bars
- Gain
- Automatic White Balance
- Manual White Balance with Red Gain and Blue Gain
- Return Video
- Black Balance / Auto Set
- Master Black level
- Iris, Manual and Auto

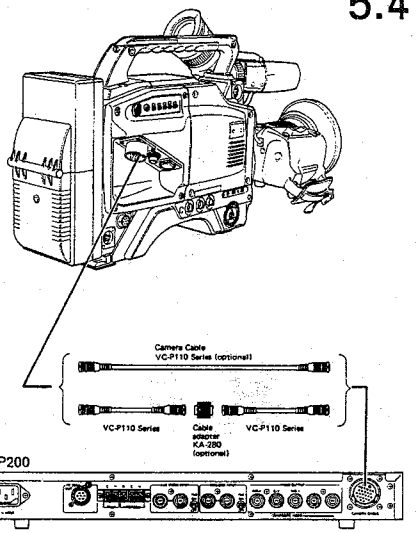
Genlock functions, Loop through Reference video connection as well as SC phase and H phase adjustment are all possible from the remote unit with controls located on the front panel.

Two composite video outputs are provided, as well as a choice of either RGB, Component or Y/C output.

These basic functions are controlled completely by the serial data connection to and from the camera.

Other advanced functions such as LOLUX or Full Auto Shooting, Full Time Auto White, Variable Scan and others are not controlled.

Please check with the RM-P200 manual for further operating instructions.



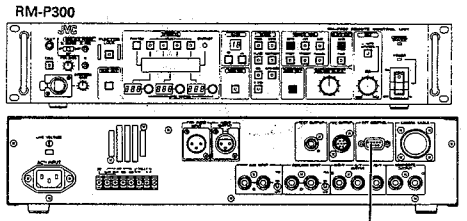
Accessories:

VC-P110 series cables
5m, 20m, 50m, 100m
KA-280 cable adapter (for extension)
KA-300 headset

5.4.3 RM-P300 AND RM-LP821

The RM-P300 Camera control unit can be extended up to 300 Meters (984 feet) from the camera.

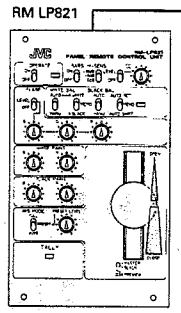
In addition to all the basic functions of the RM-P200, the RM-P300 adds comprehensive front panel warnings.



Additional advanced functions:

- Manual Black balance (Paint)
- (with Red Gain and Blue Gain)
- Contour control
- Function Lock
- Call tally function
- External control through RS-232
- 4 wire intercom

The RM-LP821 Remote Unit allows control of the important variables remotely from the rack unit, including a master fader for the IRIS and pedestal.



Accessories:

VC-P110 Series Cable
5m, 20m, 50m, 100m
KA-280 Cable Adapter (for extension)
RM-LP821 Panel Remote Control
KA-310 Head Set

5.5 LOCAL REMOTE AND COMPUTER CCU CONTROL

The KY-19 can be remotely controlled by the stand alone RM-LP80 control unit and by Computers such as IBM through the RS-232C cable or Macintosh through the Macintosh cable.

5.5.1 RM-LP80/LP35/LP37 CONNECTION

The connection with the camera is through the six pin connector on the camera head. A 5 meter cable is supplied with the RM-LP80/LP35/LP37.

5.5.2 REMOTE OPERATION

To configure the camera for the RM-LP80/LP35/LP37 set the Iris Mode switch on the lens to Auto.

5.5.3 CONTROLS

Set the **Operate Switch** on the RM-LP80/LP35/LP37 to ON to use.

Functions not available

The following functions are not available on the camera, so they cannot be operated using the local remote control.

RM-LP80 : TEST OUT SELECT switch
AUTO SHIFT function
RM-LP35 : Gain switching –3 dB
Knee point adjustment
Flare correction function
Black stretch switch
Gamma correction function
RM-LP37 : Flare correction function

Notes

- If the local remote control and the camera have the same switch function, the local remote control is given higher priority, and the function cannot be controlled from the camera.
- The sensitivity select switch is set to the value specified by the local remote control regardless of the camera setting.
- The camera's Lolux and full auto-shooting functions are not available while the local remote control is active.

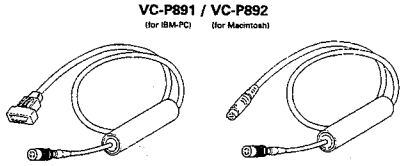
See the local remote control instruction manual for details.

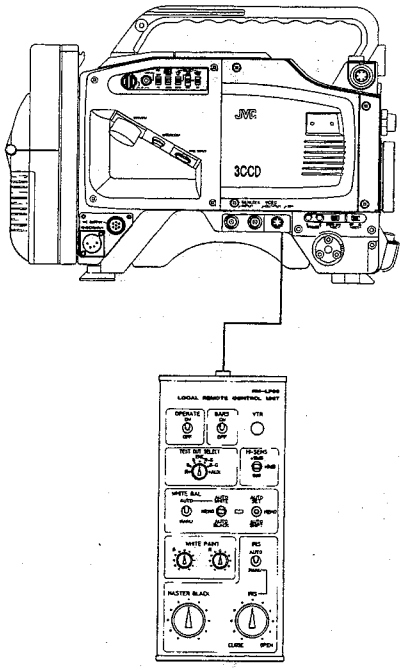
5.5.4 COMPUTER CCU CONTROL

The computer control cables and software can control the same features as Local Remote Control.

Additional features include Shutter speed and Contour (Detail) on/off.

Please check with your dealer for the proper cables and software. RS-232C and Macintosh cables are available.

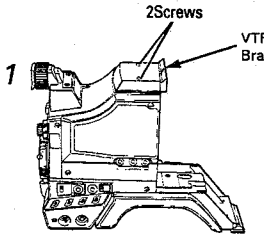




INSTALLATION AND PREPARATION 6

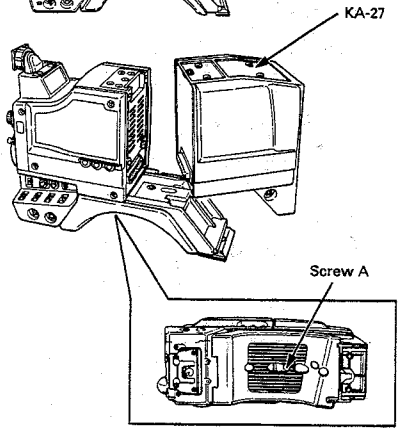
KA-27 CAMERA ADAPTER 6.1

1 The KY-19/KY-27 is supplied disconnected from the KA-27 adapter.
The first step is to remove the VTR Mounting Bracket that is used for some docking VTRs.
There are 2 screws holding the bracket in place.



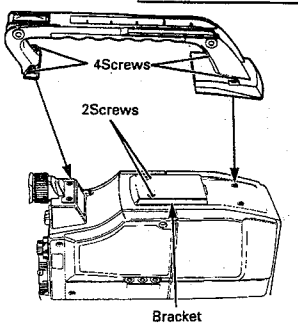
2 Next slide the KA-27 on to the back of the KY-19/KY-27, engaging the 50 pin parallel connector.

3 Use Screw A to lock the KA-27 to the shoulder rest mount.



4 The KA-27 is supplied with a mounting bracket to replace the VTR Mounting Bracket. This is held in place with 2 screws.

5 The last step is to mount the Handle to the Viewfinder post and the KA-27. The Handle is secured with 4 screws.

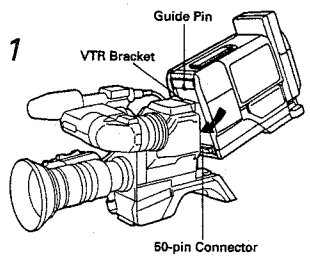


6.2 DOCKABLE VTRS

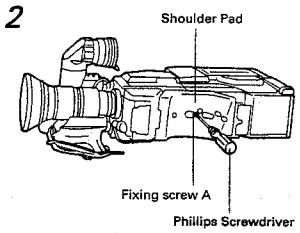
6.2.1 BR-S422 VTR ATTACHMENT

The BR-S422's connection to the camera is basically the same as the connection of the KA-27 except the VTR bracket is not taken off when connecting the BR-S422.

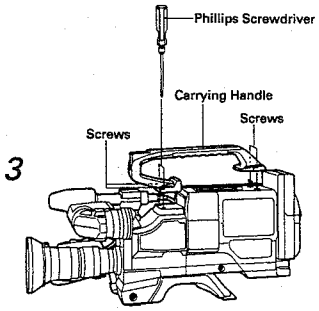
1 Align the BR-S422's guide pin with the V groove of the camera's VTR bracket after removing the cap of the 50-pin connector. Securely engage the BR-S422's 50-pin connector to the camera's.



2 Secure the BR-S422 to the camera by inserting the fixing screws A through the camera's shoulder pad, using a Phillips screwdriver.



3 Secure the provided carrying handle to the camera and the BR-S422 with four screws, using a Phillips screwdriver as illustrated.



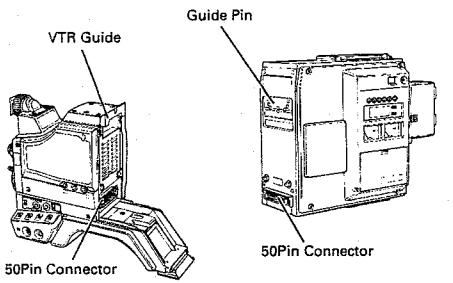
6.2.2 BR-S411B VTR ATTACHMENT

The BR-S411B is attached using the same principle as the KA-27 adapter, with two exceptions.

1. The VTR Mounting Bracket should not be removed
2. The KA-232B Carrying Handle is optional and must be ordered separately.

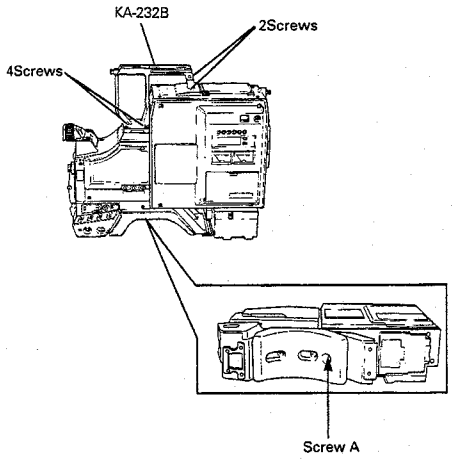
1 Remove the Standalone adapter from the BR-S411B.

2 First slide the BR-S411B on to the back of the camera, engaging the guide pin and the 50 pin parallel connector.



3 Use Screw A to lock the BR-S411B to the shoulder rest mount.

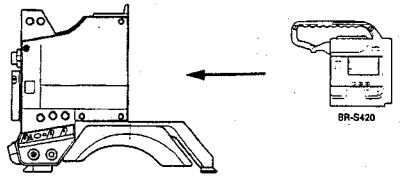
4 The last step is to mount the Handle to the Viewfinder post and the BR-S411B. 4 screws secure the Handle to the camera and 2 screws secure the handle to the deck.



6.2.3 BR-S420C VTR ATTACHMENT

Docking the BR-S420C is identical to the procedure form the BR-S411B. (There is no standalone adapter for the BR-S420C).

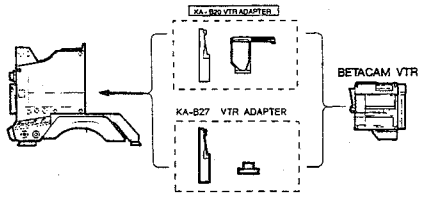
The handle is included with the BR-S420C.



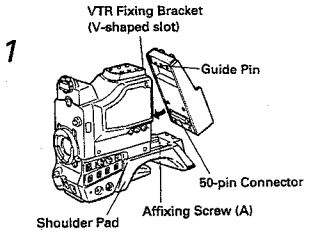
6.2.4 BETACAM® SP VTR ATTACHMENT KA-B20/B27

To dock with Broadcast Betacam SP decks such as a BW-5, the KA-B20/B27 VTR adapter is required.
The VTR Mounting Bracket should not be removed.
The following are shown by KA-B27 adapter.

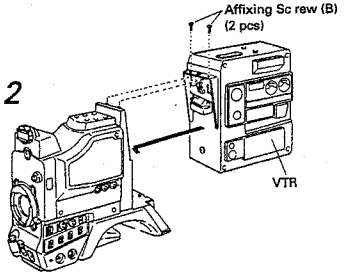
Docking with Betacam SP.



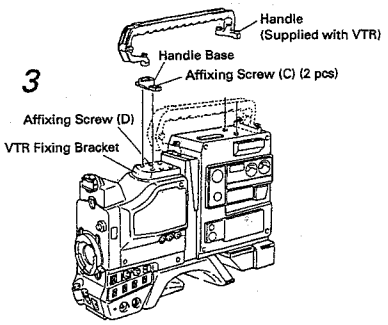
1 Align the guide pin of the KA-B27 with the V-shaped slot on the rear of the camera section. Insert the guide pin in the slot while pressing the KA-B27's 50-pin connector to the corresponding connector on the rear of the camera section to dock them with each other.
Tighten an affixing screw (A) under the shoulder pad as shown below.



2 If the VTR is equipped with a handle, remove the handle before attaching the adapter.
Slide the VCR onto the rear of the adapter to dock them with each other, and secure them with two affixing screws (B) provided with the VTR as shown below.

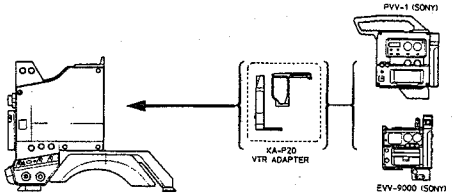


3 Attach the provided handle base to the top of the camera with two affixing screws (C).
To fit the VTR fixing bracket to the camera again, push it in the direction of the front side while fixing it with two affixing screws (D).
Fit the camcorder with the handle that was removed from the VTR in the above step 1 as shown below.



6.2.5 BETACAM® PROFESSIONAL/ Hi8 VTR ATTACHMENT KA-P20

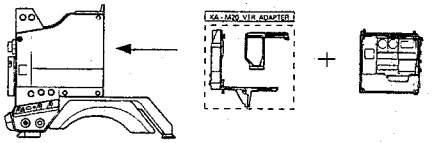
Batacam Professional decks and Hi8 decks such as the EVV-9000 can be mounted in the field using the KA-P20 adapter.
This includes the adapter plate and the handle.
The VTR Mounting Bracket should not be removed.



6.2.6 MII VTR ATTACHMENT KA-M20

To dock with the MII VTR, an adapter is needed. The KA-M20 VTR adapter includes an adapter plate and the proper handle.
The VTR Mounting Bracket should not be removed.

Docking with MII VTR (AU-400/410 Panasonic)



6.3 LENS ATTACHMENT

1 Remove the mount cap. Be careful there is no dust left inside the mount.

2 Connect the lens cable to the camera head.

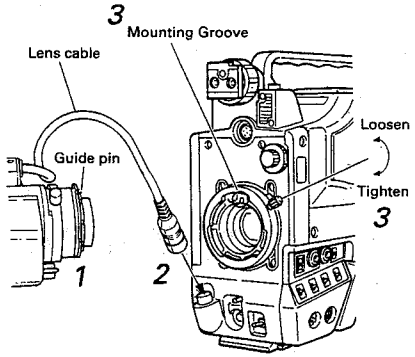
3 Align the groove in the mount with the guide pin on the lens. Turn the mount ring clockwise so the lens is secured firmly on the lens mount.

Notes:
- Be sure to tighten the lens completely, otherwise the back focus adjustment may be incorrect.
- It is recommended to read the instruction book of the lens carefully.

KY-27 only
When zoom lenses other than the specified optional lens A14 x 10 BRM12 are used, dynamic shading might occur at the upper and portions of the screen. Re-adjustment of the camera (charged) is necessary. Consult an authorized JVC Service Agent.

Note that the VTR Trigger switch of 8-pin lens is usually locked contact and of 12-pin lens is usually nonlocked.

In the Camera Set-Up menu a locked or nonlocked setting must be chosen.



6.4 VIEWFINDER ATTACHING/ DETACHING

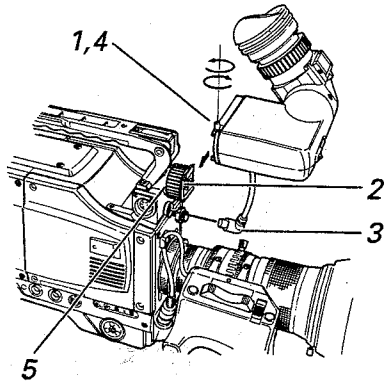
1 Loosen the stopper screw.

2 Attach the viewfinder with its guide aligned with the shoe.

3 Connect the cable.

4 Tighten the stopper screw.

5 Tighten the ring.



MICROPHONE ATTACHMENT 6.5

Attaching Microphone Holder

The KY-19/KY-27 camera comes with a standard Microphone Holder. This Holder can be used for JVC or other manufacturers microphones.

1 Attach the Microphone Holder using the three mounting screws.

2 Loosen the quick release clasp by turning the outside tightening knob.

3 Position the microphone in the holder. If it is a stereo microphone pay attention to the left and right orientation.

4 Use the inside and outside tightening knobs to adjust for the diameter of the microphone.
If the microphone does not fit, it is necessary to connect to the camera using a Shock Mount with the mounting shoe on the camera handle. These are available from various microphone manufacturers.

5 Shut the holder and tighten until firm.

6 Set the microphone Stereo or Mono switch on this side of the camera for the desired recording signal.

WARNING!
With a portable deck the Left Stereo signal will be recorded only, unless the select switch is set to mono.
With a mono microphone in the stereo mode, only the left audio channel of the Docked VTR will be recorded.

7 Be sure to match the KA-27 audio output level to the portable VTR required input level.

8 Set the KA-27 Camera Adapter Mic input switch.
CAM: The 6 pin input on the camera head
AD: The balanced 3pin XLR input on the adapter.

JVC MV-P612 STEREO microphone (Optional)

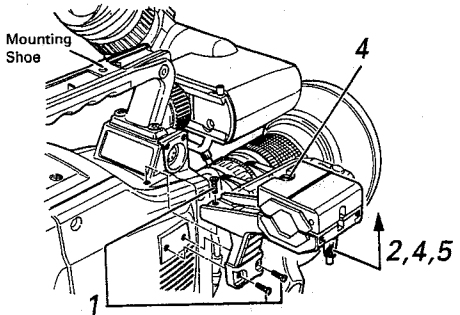
The JVC MV-P612 Stereo microphone should be attached using the 6pin connector next to the Microphone Holder. Push to connect only.

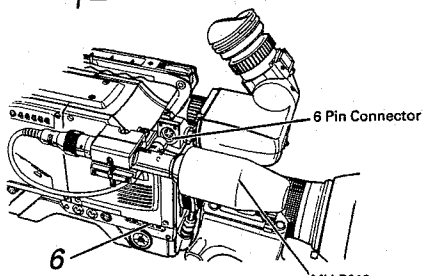
JVC M-K50, MV-P602 MONO microphones (Optional)

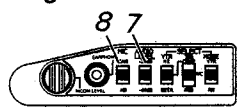
These mono microphones should be removed from the included mounting adapter.
The optional VC-P740 microphone cable should be connected instead.
Attach the microphone suing the 6pin input connector. Push to connect only.

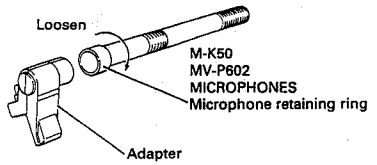
Other Microphones

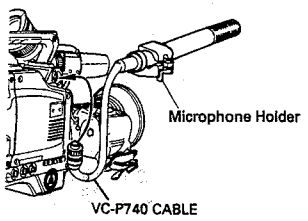
All other microphones should be connected to the 3pin balanced input on the KA-27 adapter, or directly to the inputs of the Docked deck.





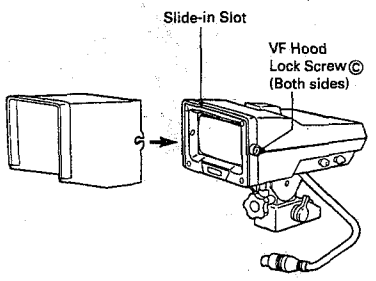






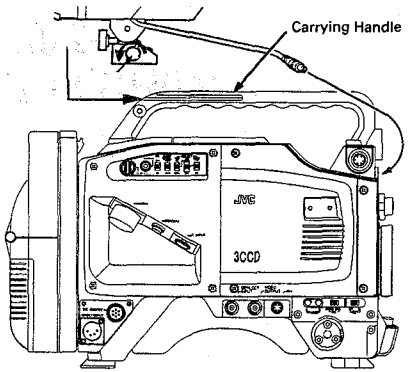
6.6 OPTIONAL STUDIO VIEWFINDER VF-P400/P550B

The studio viewfinder can be attached and powerd with the same viewfinder connection as the standard ENG viewfinder.



Mount the Viewfinder on the rear of the carrying handle using the slide bracket.

See the Viewfinder's manual for further instructions.



6.7 STUDIO KIT ATTACHMENT

Studio controls for tripod use with the lens used with this camera are available from JVC or from the Lens manufacturer.

These mount directly to the lens and include control over Servo Zoom, Mechanical focus and trigger functions.

The RM-LP80 remote unit can also be use for tripod control of trigger and camera set-up functions.

SPECIFICATIONS AND ACCESSORIES 7

SPECIFICATIONS 7.1

● **KY-27C with KA-27 Camera Adapter**

Optical system: F1.4 prism

Pick up Device: 2/3" IT 3CCD with on chip lens

Picture Elements:

U version	768H x 493V 380,000 active pixels
E version	754H x 581V 440,000 active pixels

Lens Mount: 2/3" Bayonet

Sensing area: 8.8mm x 6.6mm (2/3" equiv)

Encoder:

U version	R-Y, B-Y Wide-Band
E version	PAL U, V ecoder

Scanning system: 2:1 Interlaced,

U version	525 lines, 60 fields/sec.
E version	625 lines, 50 fields/sec.

	U version	E version
Horiz frequency	15.734 kHz	15.625 kHz
Vertical frequency	59.94 kHz	50 Hz

Synchronization: External, Internal

Color filter:
1. 3200 Kelvin (neutral)
2. 5600 K
3. 5600 K + 1/16ND
4. Cross Effect 3200 K

Sensitivity: F9 at 2000 lux, 0dB gain

Minimum Standard Illumination: 6 lux with F1.4, +18 dB gain

LOLUX Minimum Illumination: 1 lux with F1.4, +33 dB gain

Signal to Noise Ratio (Typical):

U version	62 dB
E version	60 dB

Resolution
Y channel: 800 Horizontal Lines
RGB channels: 540 Horizontal Lines

Registration: 0.05% or less (Without lens distortion)

Geometric Distortion: Below measurable level

Color Bars:

U version	SMPTE type
E version	Full Field

Gain Boost: 0,6,9,12,18,Variable gain in ALC

Shutter Speeds: 1/60*, 1/100*, 1/250, 1/500, 1/1000, 1/2000,
Variable Shutter in ALC
(*1/50, 1/120 for E version)

Variable Scan: 1/60.2 - 1/1966.7, 256STEPS

U version	1/60.1 – 1/2074.6
E version	1/50.1 – 1/2061.8

OUTPUTS

Composite: BNC, 26Pin
1 Vp-p/75 Ohm

Y/C: 7 Pin, 26 Pin
Y: 1 Vp-p/75 Ohm (with sync)
C:

U version	0.286 Vp-p/75 Ohm
E version	0.3 Vp-p/75 Ohm

Component: 26 Pin
Y: 1 Vp-p/75 Ohm
R-Y, B-Y:

	MII position	BETACAM position
U version	0.486 Vp-p	0.7 Vp-p
E version	0.525 Vp-p	0.525 Vp-p

Impedance = 75 Ohm

RGB: 26 Pin
0.7Vp-p/75 Ohm

Audio: 26 pin
-60dBm/-20dBm selectable
600 Ohm balanced

INPUTS

Genlock: BNC, 26 pin
VBS: 1 Vp-p/75 Ohm
BB:

U version	0.43 Vp-p	75 Ohm
E version	0.45 Vp-p	75 Ohm

Return Video: 26 Pin, 50 pin docked
VBS 1 Vp-p/75 Ohm

Audio: Mic level JVC 6pin, XLR
JVC 6pin: -52dBm Unbalanced
9V power, Stereo/Mono
XLR: -60dBm (Balanced)

Voltage: 12V DC

Power (Typical): 12.6 Watts with camera adapter, Viewfinder.
12.1 Watts with viewfinder only.
9.8 Watts without adapter, Viewfinder.

Temperature Range: –10 to +45 degrees C,
14 to 104 degress F

Weight: 3.8 Kg with camera adapter and Viewfinder

● KY-19 with KA-27 Camera Adapter

Optical system: F1.4 prism

Pick up Device: 1/2" IT 3CCD with on chip lens

Picture Elements:

U version	768H x 493V 380,000 active pixels
E version	752H x 582V 440,000 active pixels

Lens Mount: 1/2" Bayonet

Sensing area: 6.4mm x 4.8mm (1/2" equiv.)

Encoder:

U version	R-Y, B-Y Wide-Band
E version	PAL U, V ecoder

Scanning system: 2:1 Interlaced,

U version	525 lines, 60 fields/sec.
E version	625 lines, 50 fields/sec.

	U version	E version
Horiz frequency	15.734 kHz	15.625 kHz
Vertical frequency	59.94 kHz	50 Hz

Synchronization: External, Internal

Color filter:
1. 3200 Kelvin (neutral)
2. 5600 K
3. 5600 K + 1/16ND

Sensitivity: F8 at 2000 lux, 0dB gain

Minimum Standard Illumination: 7.5 lux with F1.4, +18 dB gain

LOLUX Minimum Illumination: 2 lux with F1.4, +30 dB gain

Signal to Noise Ratio (Typical):

U version	62 dB
E version	60 dB

Resolution
Y channel: 750 Horizontal Lines
RGB channels: 540 Horizontal Lines

Registration: 0.05% or less (Without lens distortion)

Geometric Distortion: Below measurable level

Color Bars:

U version	SMPTE type
E version	Full Field

Gain Boost: 0,6,9,12,18,Variable gain in ALC

Shutter Speeds: 1/60*, 1/100*, 1/250, 1/500, 1/1000, 1/2000, Variable Shutter in ALC (*1/50, 1/120 for E version)

Variable Scan: 1/60.2 - 1/1966.7, 256STEPS

U version	1/60.1 – 1/2084.6, 255 STEPS
E version	1/50.1 – 1/2067.8, 305 STEPS

OUTPUTS

Composite: BNC, 26Pin
1 Vp-p/75 Ohm

Y/C: 7 Pin, 26 Pin
Y: 1 Vp-p/75 Ohm (with sync)
C:

U version	0.286 Vp-p/75 Ohm
E version	0.3 Vp-p/75 Ohm

Component: 26 Pin
Y: 1 Vp-p/75 Ohm
R-Y, B-Y:

	MII position	BETACAM position
U version	0.486 Vp-p	0.7 Vp-p
E version	0.525 Vp-p	0.525 Vp-p

Impedance = 75 Ohm

RGB: 26 Pin
0.7Vp-p/75 Ohm

Audio: 26 pin
-60dBm/-20dBm selectable
600 Ohm balanced

INPUTS

Genlock: BNC, 26 pin
VBS: 1 Vp-p/75 Ohm
BB:

U version	0.43 Vp-p	75 Ohm
E version	0.45 Vp-p	75 Ohm

Return Video: 26 Pin, 50 pin docked
VBS 1 Vp-p/75 Ohm

Audio: Mic level JVC 6pin, XLR
JVC 6pin: -52dBm Unbalanced
9V power, Stereo/Mono
XLR: -60dBm (Balanced)

Voltage: 12V DC

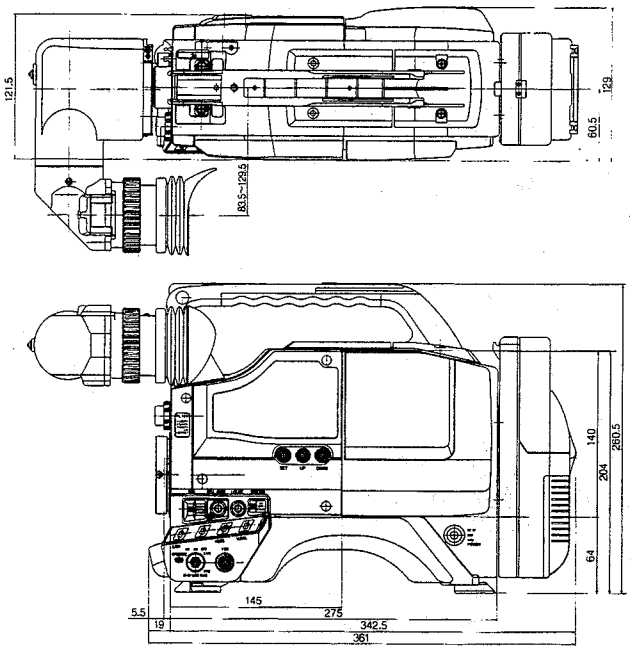
Power (Typical): 12.4 Watts with camera adapter, Viewfinder.
11.9 Watts with viewfinder only.
9.6 Watts without adapter, Viewfinder.

Temperature Range: –10 to +45 degrees C, 14 to 104 degress F

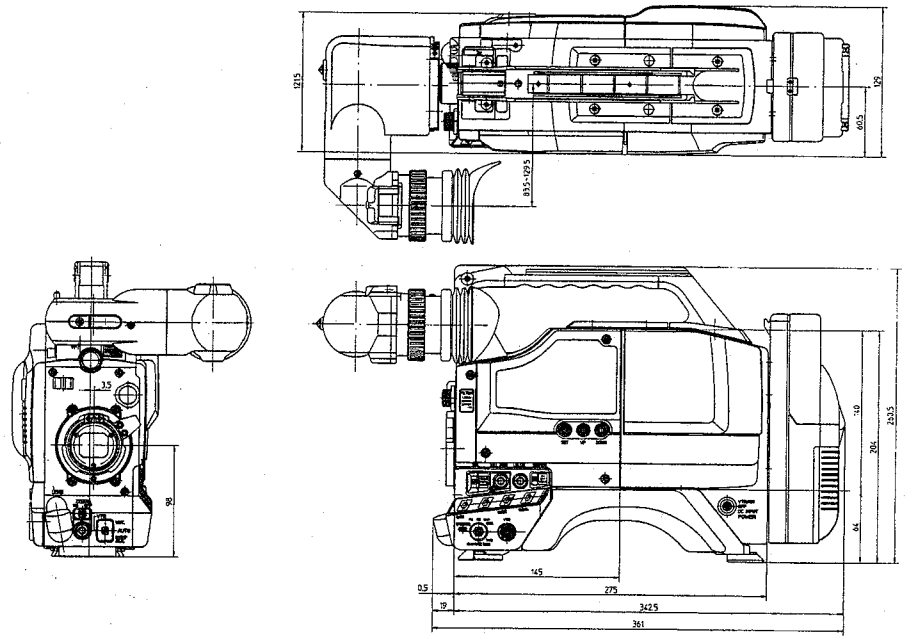
Weight: 3.8 Kg with camera adapter and Viewfinder

7.2 DIMENSIONS [Unit: mm]

● KY-27 with KA-27 Camera Adapter and VF-P115 Viewfinder.



● KY-19 with KA-27 Camera Adapter and VF-P115 Viewfinder.



7.3 ACCESSORIES

KY-27CUCH/19UCH Standard Accessories

MIC holder	: KA-A27
Tripod base	: KA-510
Soft case	

Optional Accessories

Electronic viewfinder	: VF-P115
Studio viewfinder	: VF-P400/P550B
Power zoom lens	: Fujinon S14 x 7.5 B12 (KY-19) Fujinon A14 x 10 BRM12 (KY-27)
Mounting adapter (convert 2/3" lens to 1/2" lens mount)	: HZ-MC73U
AC power adapter	: AA-P250
DC battery pack	: NB-G1 (12 V, 2.2 AH)
Chest rest	: KA-111
Camera adapter	: KA-27
Carriage case	: CB-P27
VTR adapter	
for MII	: KA-M20
for BETACAM SP	: KA-B27
for BETACAM PRO and HI-8	: KA-P20

ACCESSORIES SYSTEM CHART 7.4